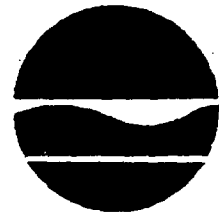


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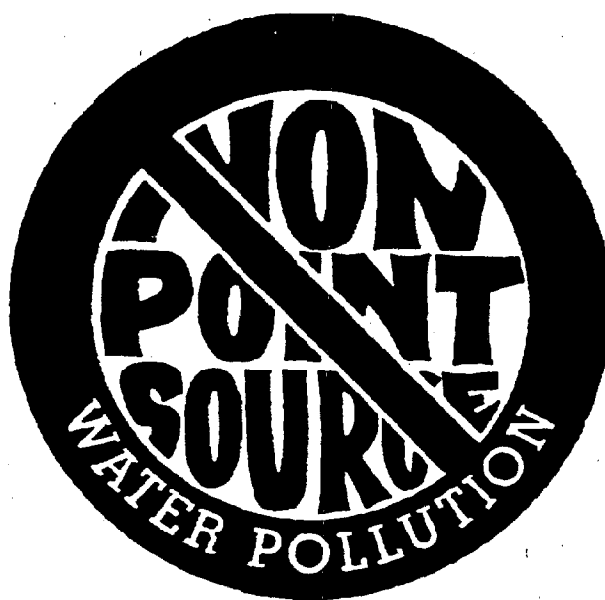
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New York State
Department of Environmental Conservation

NONPOINT SOURCE MANAGEMENT PROGRAM

January, 1990



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PREFACE

As the major point sources of water pollution are brought under control, the impacts of nonpoint sources have become more apparent. Nonpoint source pollution is caused by diffuse sources that contaminate waterbodies through atmospheric deposition, runoff from the land and/or percolation through the soil. Nonpoint source pollution is the primary source of contamination for more than 80% of the impaired waterbodies in New York.

Finding solutions to nonpoint source problems represents a significant challenge to the people of New York. It will not be as simple as finding a pipe and issuing a permit to the municipality or industry requiring the meeting of certain effluent limits.

In many cases, the solution to nonpoint source problems will involve coordination and cooperation of agencies from all levels of government as well as the public.

Successful implementation depends on a broad understanding of the problem and public support for controls. People must be willing to cooperate and accept responsibility for changing their own practices in agriculture and industry, in cities and suburbs, in the workplace and at home. As some controls will have to be regulatory and others voluntary, participating agencies must work together with farmers, developers, city planners, and others to implement controls.

New York State has recognized this need for coordination and cooperation early in the nonpoint source control program development, and invited interested groups statewide to participate in writing the assessment and management program reports required by the Clean Water Act. Invitations were extended to fellow state agencies and groups representing interests of agriculture, community, local government, environment, natural resources, academia, forestry, business, industry and outdoor recreation to participate in a working group to help create a nonpoint source program for New York State.

At workshops, participants identified statewide concerns and aired differences of opinion. The working group process proved to be a valuable mechanism which created understanding among interest groups, developed creative solutions and identified issues for future discussion. The resulting document attempts to recognize the concerns expressed by the working group while conveying DEC policy.

This Management Program identifies management practices for the control of nonpoint source pollution, describes a watershed planning process for addressing nonpoint source problems, and recommends control measures to address each category of nonpoint source pollution that is considered a problem in New York. The

PREFACE
(Continued)

Management Program is meant to go hand-in-hand with the Assessment Report which identifies impacted waterbodies and existing programs for controlling nonpoint source pollution.

The authors of this report wish to express their appreciation to all those who participated in the working group sessions and who provided comments on preliminary drafts of the report. New York State cannot hope to effectively deal with nonpoint source problems without the continued cooperation of dedicated individuals such as these. A list of those members of the working group who participated in the process is included in the acknowledgement section.

This Management Program was made available for public review as required by federal regulations. The report was modified in response to comments.

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CHAPTER I

OVERVIEW

Water quality programs traditionally have concentrated on controlling point sources of pollution, and notable success has been achieved in New York State through the State Pollutant Discharge Elimination System (SPDES), the municipal construction grants program, and other program efforts. As the major point sources of water pollution are brought under control in New York, the water quality impact of so-called "nonpoint" sources becomes more apparent. To continue progress toward cleaning up and preventing damage to New York's waters, existing nonpoint source problems must be identified, and their impacts be assessed and mitigated.

Similar trends on a national level led the 100th Congress to include in the Water Quality Act of 1987 increased attention and priority on the development and implementation of nonpoint source control programs. This law amended the Clean Water Act and included a new Section 319 which authorized federal assistance for nonpoint source programs. It required the states to produce two documents -- a nonpoint source assessment and a nonpoint source management program. Very specific language was included in the law to describe the contents of these reports. Table I-1 has excerpts from the law which detail the report contents.

The provisions of the law have been used to guide and structure each of the separate, but related Assessment and Management Program reports. Each must be read with an awareness of the content of the other.

Nonpoint Source Management Program Objectives

This management program outlines a strategy for controlling nonpoint source pollution in New York. The objectives of the document are:

1. To identify approved management practices for the control of nonpoint source pollution;
2. To establish a watershed planning process and provide guidelines for setting priorities among watersheds;
3. To recommend control measures needed to address each category of nonpoint source pollution causing water quality problems in New York;

The Federal Water Quality Act of 1987 contains amendments to the Federal Clean Water Act. Reference to both Acts will be contained throughout the Management Program, and both terms will be used interchangeably.

Table 1-1

Contents of Nonpoint Source Documents
Prepared for the Water Quality Act of 1987

For State Assessment Reports, Section 319(a)(1) calls for a document that:

- (A) identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards or the goals and requirements of this Act;
- (B) identifies those categories and subcategories of nonpoint sources or, where appropriate, particular nonpoint sources which add significant pollution to each portion of the navigable waters identified under subparagraph (A) in amounts which contribute to such portion not meeting such water quality standards or such goals and requirements;
- (C) describe the process, including intergovernmental coordination and public participation, for identifying best management practices and measures to control particular nonpoint sources identified under subparagraph (B) and to reduce, to the maximum extent practicable, the level of pollution resulting from such category, subcategory, or source; and
- (D) identifies and describes State and local programs for controlling pollution added from nonpoint sources to, and improving the quality of, each such portion of the navigable waters, including but not limited to those programs which are receiving Federal assistance under subsections (h) and (i).

For the Management Program, Section 319(b)(2) specifies:

- (A) An identification of the best management practices and measures which will be undertaken to reduce pollutant loadings resulting from each category, subcategory, or particular nonpoint source designated under paragraph (1)(b), taking into account the impact of the practice on groundwater quality.
- (B) An identification of programs (including, as appropriate, non-regulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects) to achieve implementation of the best management practices by the categories, subcategories, and particular nonpoint sources designated under subparagraph (A).
- (C) A schedule containing annual milestones for (i) utilization of the program implementation methods identified in subparagraph (B), and (ii) implementation of the best management practices identified in subparagraph (A) by the categories, subcategories, or particular nonpoint sources designated under paragraph (1)(B). Such schedule shall provide for utilization of the best management practices at the earliest practicable date.
- (D) A certification of the attorney general of the State or States (or the chief attorney of any State water pollution control agency which has independent legal counsel) that the laws of the State or States, as the case may be, provide adequate authority to implement such management program or, if there is not such adequate authority, a list of such additional authorities as will be necessary to implement such management program. A schedule and commitment by the State or States to seek such additional authorities as expeditiously as practicable.
- (E) Sources of Federal or other assistance and funding other than assistance provided under subsection (h) and (i) which will be available in each of such fiscal years for supporting implementation of such practices and measures and the purposes for which such assistance will be used in each of such fiscal years.
- (F) An identification of Federal financial assistance programs and Federal development projects for which the State will review individual assistance applications or development projects for their effects on water quality pursuant to the procedures set forth in Executive Order 12372 as in effect on September 17, 1983, to determine whether such assistance applications or development projects would be consistent with the program prepared under this subsection; for the purposes of this subparagraph, identification shall not be limited to the assistance programs or development projects subject to Executive Order 12372 but may include any programs listed in the most recent Catalog of Federal Domestic Assistance which may have an effect on the purposes and objectives of the State's nonpoint source pollution management program.

4. To identify potential sources of funding available to implement nonpoint source control programs; and
5. To establish a procedure ensuring that federal, state and local programs are consistent with the state's nonpoint source program.

A. Basic Concepts: Nonpoint Sources and Controls

The concept of "nonpoint source pollution" can be confusing. Nonpoint source pollution can be defined by contrasting it with "point source pollution." A point source of water pollution is defined as a discharge from a discrete, identifiable location such as a pipe. A nonpoint source may be an areawide source or many sources distributed diffusely which cumulatively contribute to water quality degradation. The characteristics that generally distinguish point and nonpoint sources are as follows:

POINT SOURCE POLLUTION	NONPOINT SOURCE POLLUTION
- Pollutants discharged from a single source at a discrete point.	- Pollutants entering water at many locations from many sources, distributed diffusely over an area.
- Pollution can feasibly be abated and/or controlled through regulatory permits, inspections, monitoring and compliance processes.	- Usually best prevented or remediated by modifying activities, practices or operations on the land, or by changing land use activities either through the use of financial incentives, voluntary compliance, or regulation.
- Usually controlled through use of wastewater treatment technologies to remove pollutant before discharge.	- Usually controlled by reducing or preventing availability, release or transport of pollutants that adversely affect water quality.
- Usually associated with the use and disposal of or water for industrial, commercial or municipal purposes.	- Usually associated with runoff from precipitation events or with movement of groundwater.

Whether a certain type of pollution source is a point source or a nonpoint source is not always clear. Some do not fit perfectly within the definition of either. For example, individual septic tanks are normally regarded as nonpoint sources of pollution

because groundwater can be polluted when many facilities are installed in a restricted area. However, an individual septic tank which discharges directly to a waterbody may be considered a point source.

Pollution from most nonpoint sources occurs in response to hydrologic events. Contaminants transported in overland runoff following a storm event usually are characterized as nonpoint if they enter a waterbody diffusely or point if they enter at a discrete stormwater discharge point. Pesticides and fertilizers applied on large areas of land are considered nonpoint pollutants if they migrate to surface or groundwater.

Airborne pollutants, including contaminants which are responsible for acid rain and particulates transported by wind, also are characterized as nonpoint. Although these pollutants are best controlled at their emission points by air quality programs, their adverse impact on water quality demonstrates the need to include air quality programs as part of New York's nonpoint source and clean water management strategy.

The classification of sources of groundwater contamination as nonpoint or point is slightly different than for surface waters. For sections of this management program relating to groundwater, any source not specifically permitted through SPDES is considered a nonpoint source.

Table I-2 lists by source category various nonpoint sources of pollution affecting surface and groundwater in New York State. These categories represent a modification of the list the U.S. Environmental Protection Agency (EPA) provided in its nonpoint source program guidance.

The control and prevention of nonpoint source impacts on the state's waters requires a different approach from that used with point sources of pollution. Those involved with control of a point source include only a few entities: the source owner (private or public) and the regulating institutions. Managing nonpoint sources, on the other hand, calls for the participation of a wide variety of players. The Assessment Report shows that a large number of agencies are involved with the various aspects of nonpoint source pollution control. The great variety of sources, the range of expertise needed to deal with them, and the distribution of legal authority and accountability all contribute to this sharing of the task.

Nonpoint source pollution usually is best prevented or remediated by employing one or more management practices (MPs). An MP is a means of preventing or reducing the availability, release or transport of substances which adversely affect surface and groundwaters. It is a practice used to prevent or reduce the impact of nonpoint pollutants from a specific source category.

TABLE I-2
Nonpoint Sources

. Agriculture

- Row crops
- Grain crops
- Orchard/vineyards
- Pasture land/overgrazing
- Barnyards
- Manure spreading
- Fertilizer application
- Pesticide application
- Livestock access to streams
- Improper manure storage
- Milking center waste

. Silviculture

- Logging adjacent to streams
- Skidding
- Logging road construction/maintenance
- Improper landing location

. Construction

- Highway/road/bridge
- Land clearing/development

. Diffuse Urban Runoff

- Impervious surface (contaminants from streets, sidewalks, parking lots, roofs)
- Pervious surfaces (pesticides/fertilizer application to lawns/golf courses)

. Resource Extraction/Exploration/Development

- Surface mining
- Dredge mining/spoil disposal
- Petroleum activities (brine solutions and sediment associated with gas and oil drilling operations)
- Mill tailings
- Mine tailings

. Land Disposal

- Sludge (disposal of septage/sludge from wastewater treatment)
- Wastewater
- Landfills (solid waste disposal)
- Industrial wastes
- On-site wastewater systems (septic tanks)
- Hazardous wastes

. Hydrologic/Habitat Modification

- Stream channelization
- Dredging
- Flow regulation/modification
- Removal of riparian vegetation
- Streambank modification/destabilization
- Surface impoundments

. Other

- Contaminated sediment
- Atmospheric deposition
- Leaks, spills and accidents including toxic or hazardous substances
- Saltwater intrusion resulting from overpumping/inter-basin transfers
- Storage and application of deicing agents and abrasives
- Natural (ambient conditions)

Many management practices should be used by individuals or groups to diminish the impact of nonpoint source pollution. They can be utilized without a formal planning process or without an identification of a specific problem. They can be adopted because they make good environmental sense. As with many environmental concerns today, there is a need to act with a degree of responsibility for the world around us. Use of appropriate management practices is one aspect of such an approach.

B. Historic Perspective of Nonpoint Source Planning in New York

During the last decade, a variety of programs have considered the impact of nonpoint source pollution on New York's waters. These have included planning efforts, demonstration projects and implementation programs. A review of the major initiatives will help put the goals of this management program in perspective with past water quality initiatives in New York.

Section 208 of the Federal Water Pollution Control Act Amendments of 1972 required states to undertake water quality management planning. States were to initiate a process to identify major water quality problems, assess the need for government actions to address those problems and establish the institutional framework to ensure that solutions to water quality problems would be implemented.

A significant portion of the overall statewide 208 effort involved several studies designed to provide the State's initial program strategies in the area of nonpoint sources. The source categories of agriculture, silviculture, construction and mineral extractions were studied in the planning process. The 208 Plan recognized that program development for nonpoint source management was in its formative stages and that much additional problem assessment, research and planning was needed.

Another planning requirement of the Clean Water Act is that, under Section 303(e), states are required to maintain a Continuing Planning Process (CPP). New York's original CPP was written and approved by EPA in 1983. It has been updated several times with the most recent revision dated January, 1989. The CPP is to be viewed as an overview of how water quality management decisions are reached and implemented. It describes each of the programs involved in water quality management, including the nonpoint source program.

The New York State Department of Environmental Conservation (DEC) by virtue of its statutory authority for the management of water resources and control of water pollution in the state, has assumed the lead responsibility for control of nonpoint source pollution. One action taken by DEC to carry out its responsibility was the development of a draft Nonpoint Source Management Strategy in July, 1986. This strategy described existing programs and made

recommendations for new initiatives to address various nonpoint sources. This strategy was not issued as a final document due to the pending amendments to the Clean Water Act which would have its own requirements for a nonpoint source management program.

DEC will use its role as the lead agency for water quality activities in the state to require that other agencies who take actions under the auspices of the nonpoint source program be consistent with program objectives. This will be done through memorandums of understanding with appropriate agencies, consistency reviews of federal actions and contracts with regional planning agencies (and/or Soil and Water Conservation Districts) who receive pass-through funding under the Clean Water Act.

C. State Clean Water Strategy

Nonpoint source pollution control is one of several program areas given new emphasis in the Water Quality Act of 1987. Programs that increase efforts to achieve the national goal of swimmable and fishable waters were strengthened. Among these, programs such as the Clean Lakes Program and toxics control also are required to develop assessments of impacted waters as a first step in focusing available capabilities on waters needing attention.

EPA has suggested that states develop clean water strategies to coordinate water quality programs in an holistic way. The long-term objective is to identify those waters not meeting water quality standards or supporting designated uses, whatever the cause, and then target appropriate programs and resources to deal with those situations.

For New York, in the first round of assessments, each program will produce its own list of waters of concern using the Priority Water Problem list as a common data base. This assessment contains the current identification of waters affected by nonpoint sources.

In the future, after the completion of the statewide update of the assessment, a unified cross-program assessment procedure will be adopted with the purpose of improving the Priority Water Problem list. Revisions will be made biennially. This will provide a more complete basis for targeting all water quality management programs as suggested by the clean water strategy guidance.

D. Content of the Management Program

New York's Nonpoint Source Management Program discusses all the topics required by the Water Quality Act of 1987 (see Table I-1). In addition, several other key topics, identified during the development of the Assessment Report and the Management Program, have been addressed in the report.

- o MAINTENANCE AND ENHANCEMENT OF LIST OF STATE WATERS AFFECTED BY NONPOINT SOURCE POLLUTION

Chapter II describes New York's process for an ongoing assessment of waters impacted by nonpoint source pollution. While this was not a requirement of Section 319, it is regarded as an essential component of the Management Program.

- o IDENTIFICATION OF MANAGEMENT PRACTICES (MPs) TO BE USED TO REDUCE NONPOINT SOURCE EFFECTS

Chapter III lists management practices currently recognized for addressing water quality problems. Lists of agricultural and silvicultural MPs are included. As MPs for each source category are approved (using the procedure described in Chapter IV of the Assessment Report), a catalogue of those practices will be prepared.

- o RECOMMENDATIONS FOR CONTROL OPTIONS NEEDED TO ADDRESS NONPOINT SOURCE POLLUTION

Chapter IV describes the major categories of nonpoint source pollution that are affecting waters in New York, identifies the programs presently available to address these sources, and makes recommendations for new measures and control options.

- o TARGETED PROGRAM APPROACHES FOR CONTROLLING NONPOINT SOURCE POLLUTION

Chapter V outlines the watershed planning process. It also explains when corrective actions should be taken on a watershed level and when a statewide approach is appropriate. The process used for setting priorities among watersheds is also described. This is another topic not required by Section 319 but viewed as an essential component of the management program.

- o SCHEDULE FOR IMPLEMENTATION OF NONPOINT SOURCE PROGRAM

Chapter VI lists a four-year schedule for the implementation of the components of the management program.

- o SOURCES OF FUNDING TO BE USED IN IMPLEMENTING NONPOINT SOURCE PROGRAMS

Chapter VII identifies potential funding sources for implementing the management program in addition to funds authorized by Section 319.

- REVIEW FEDERAL PROGRAMS TO ENSURE CONSISTENCY WITH THE NONPOINT SOURCE MANAGEMENT PROGRAM

Chapter VIII establishes a mechanism for the review of federal financial assistance programs and federal development projects to ensure that they are consistent with nonpoint source program implementation objectives and priorities.

E. Remediation and Prevention

The nonpoint source program cannot focus entirely on waterbodies already impaired. Surface waterbodies and groundwater resources that are supporting designated uses but are threatened by existing or changing land use patterns must be protected. The planning process described in Chapter V can be applied to watershed and aquifer protection programs as well as to remediation programs. It is not necessary for a problem to develop before protection measures are taken.

CHAPTER II

PROCESS FOR MAINTENANCE AND ENHANCEMENT OF THE LIST OF STATE WATERS AFFECTED BY NONPOINT SOURCES

The assessment of water quality problems caused by nonpoint source pollution will be the basis for the implementation of control programs. Priorities for program development and for watershed planning will be established using information contained in the assessment. Therefore, the assessment ideally should provide an accurate and complete description of problems and their sources.

An inventory of waterbodies affected by nonpoint source pollution is also required by Chapter 436 of the New York State Laws of 1989 (this law is included as Appendix B). This law amended Article 17 of the Environmental Conservation Law creating a Nonpoint Source Water Pollution Control Program. According to Section 17-1405, DEC (in cooperation with the State Soil and Water Conservation Committee) is required to prepare a report by January, 1991 which:

- "a. identifies those waterbodies within the state which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain and maintain applicable water quality standards; and
- b. identifies categories or subcategories of nonpoint sources or particular nonpoint sources which add significant amounts of pollution to each waterbody identified above."

This report is to then be updated at least every five years.

A. Benefits of Updating Assessment

The Assessment Report identifies numerous waterbodies in the state that are affected by nonpoint source pollution. It was based primarily on the Priority Water Problem (PWP) list which is the Division's official list of impaired waterbodies. The Assessment provides a listing of problems known at the time the report was prepared. However, it cannot be viewed as a complete and final list. There are several ways in which the lists of affected waterbodies provided in the Assessment Report can be enhanced.

1. Use additional sources of information to identify possible nonpoint source impacts. In the time available to complete the report, it was not possible to utilize data sources which require extensive analysis and interpretation. Studies such as DEC's analysis of toxic substances in fish and wildlife and NOAA's estuarine models should be reviewed as part of the process of updating the Assessment. Groundwater information from Nassau and Suffolk Counties should be utilized.
2. Provide an opportunity for everyone with knowledge of nonpoint source problems and sources in New York to present this information. A procedure to solicit input from sources outside of DEC must be established and this information factored into the Assessment.
3. Refine the information provided with more details on specific nonpoint sources. The PWP list only identifies general source categories, such as agriculture. For establishing statewide programs, more specific source information is needed. For instance, knowledge of the extent of agricultural problems caused by source subcategories such as row cropping, barnyard runoff and livestock access to streams would be helpful in setting priorities for program development.
4. Expand the database to include waterbodies that are stressed or threatened by nonpoint source pollution. The nonpoint source program should include actions intended to prevent these waterbodies from becoming impaired.
5. Develop a statewide organized data management system for groundwater quality. The Upstate Groundwater Management Program recommends that DEC develop a groundwater problem inventory for use in program performance assessment, priority setting and refinement of programs. This inventory could be used to identify groundwater problems caused by nonpoint sources.
6. Maintain a real time assessment of water quality problems in the state. Any assessment must be regarded as a snapshot which identifies problems known at the time it was performed. Periodic revisions will result in both additions and deletions to the list. As awareness of nonpoint source pollution increases, it is likely that more water quality problems will be identified. Successful implementation programs should result in some problems being solved, thus enabling removal of waterbodies from the list.

Therefore, to address these issues, an update of the assessment is recommended and provisions should be made to periodically update the lists of waterbodies with water quality problems.

B. Goals of Future Assessments

The process for updating the assessment will use the available data sources and will be open to a wider audience. It will list waterbodies where there is a significant threat of water quality degradation from nonpoint sources due to proposed or actual changes in the watershed. Future assessments will also include breakdowns of source categories which will serve as guidance for program development activities.

The updated assessment will reflect local perspectives and knowledge. DEC will advocate that eventually this assessment will be used to set priorities on the local level. By involving more people in the assessment process, the understanding of problems and the base of support for implementation of nonpoint source controls will be expanded. Agencies and groups involved with the implementation of management practices will be encouraged to concentrate efforts on watersheds identified in the assessment. A recommended watershed planning process is provided in Chapter V.

Water quality problems will continue to be categorized based on the effects on a waterbody. As explained in the Assessment Report, every waterbody in the state has been classified according to its "best use". Each use has a set of standards associated with it that limit the concentrations of various contaminants that can be present in the water. These classifications and their standards are the basis for assessing water quality. A water quality problem exists only where a classified use is affected. The effects can range from precluding a classified use to threatening the ecosystem.

The Division of Water has used several methods to categorize these impacts in the past. For future assessments, the effects of both point and nonpoint source pollution will be categorized by severity using the system shown below.

Categories of Impacts

<u>Precluded:</u>	Water quality and/or associated habitat degradation precludes, eliminates or does not support a classified use; natural ecosystem functions may be significantly disrupted. This category is used for waters with the most severe impacts.
<u>Impaired:</u>	Water quality and/or habitat characteristics frequently impair a classified use. Also applied when the designated use is supported, but at a level significantly less than would otherwise be expected. Natural ecosystem functions may be disrupted. These waters have severe impacts.
<u>Stressed:</u>	Reduced water quality is occasionally evident and designated uses are intermittently or marginally restricted; natural ecosystem may exhibit adverse changes. These waters have moderate impacts.

Threatened: Water quality presently supporting designated use and ecosystems exhibit no obvious signs of stress; however, existing or changing land use patterns may result in restricted usage or ecosystem disruption. These waters have the least impacts.

C. Process Initiation

The first update of the Nonpoint Source Assessment Report was conducted in 1989. The process to be used for this was based on experience gained from the PWP process and from the pilot assessment meetings described in the Assessment Report. Working in cooperation with the State Soil and Water Conservation Committee, DEC established a plan to accomplish this task.

This process will provide the information needed for the inventory required in the new Section 17-1405 of ECL.

A two-phase process for identifying problem waterbodies was used. The first phase had each Soil and Water Conservation District conduct a survey of nonpoint source pollution in their county. This gave Districts an opportunity to play a key role in the Assessment process. Districts invited agencies, groups and individuals from within their county to participate in identifying water quality problems. Districts collected information and presented it to DEC during the next phase of the process.

The second phase consisted of meetings of representatives from the key agencies within each county to discuss the results of the NPS survey and other available information about water quality problems. DEC coordinated these meetings. The meeting provided the Soil and Water Conservation District personnel and DEC Regional Water and Fisheries staff with an opportunity to discuss water quality problems in each county.

Prior to holding meetings, DEC collected and analyzed water quality data from the sources mentioned earlier in this chapter. Some of these data sources have been used in the past to identify impaired waterbodies, but they were now reviewed to find threatened segments. These include: DEC's Toxic Substances in Fish and Wildlife Analyses Since May 1, 1982 and the Clean Lakes Report. Data from these sources were reviewed to indicate waterbodies which are slightly below the established thresholds for impairment but might be considered stressed or threatened. Other data sources which have not been used in the past due to unavailability of data or time constraints were reviewed to identify waterbodies which may have water quality problems. Sources such as the NOAA estuarine models are included in this category.

During the meeting, all participants had an opportunity to identify water quality problems. Discussions focused on one watershed at a time. The Soil Conservation Service's Hydrologic

Watershed Units were the basis for delineating the watersheds within the county. When there was a consensus that a water quality problem exists on a specific waterbody, information regarding the problem was recorded.

Recognition of a water quality problem was the starting point for discussions. The intent of the assessment update is not to develop an inventory of land uses. The existence of a land use which may be associated with nonpoint source pollution is not sufficient to be considered a problem. A classified use of a surface waterbody or groundwater must be precluded, impaired, stressed or threatened to be regarded as a problem.

The level of information available to determine that a problem exists varied. In some cases, water quality monitoring data or modeling studies were available. For other cases, the recognition of the problem was based entirely on perception and professional judgement. The amount of documentation available was recorded along with other information about the segment. Background data such as segment name and affected area were noted. The pollutants present and their effects on the waterbody were listed. Sources which contribute to the problem and their relative contributions were noted.

Water quality problems identified during the assessment will be included on a revised list of waterbodies affected by nonpoint sources. This list will be kept separate from the PWP list and will be marked, "Draft, Subject to Agency Verification".

D. Verification Process

A procedure for verification of information presented during the Assessment update will be developed. Only segments with verified water quality problems will be included on the PWP list. Verification may be conducted by DEC Regional Water or Fisheries staff during their routine operations. DEC Central Office staff from the Bureau of Technical Services and Research or the Bureau of Monitoring and Assessment may be called upon to conduct special studies. In some cases, other agencies may be involved in verification efforts.

For segments where water quality monitoring or fish survey data exist, the data will be collected and analyzed to determine whether it supports the information provided. Fish population and habitat studies are generally available through DEC Regional Fisheries staff. Water quality monitoring data may be available from several sources. The Division of Water has several programs which conduct water quality monitoring. The primary activities are the Rotating Intensive Basin Studies and the Intensive Stream Surveys, both conducted by the Bureau of Monitoring and Assessment. The U.S. Geological Survey is another agency which performs water quality monitoring and may have data on a specific

stream. Some universities and colleges also have programs which collect data and study waterbodies. Finally, local groups (such as lake associations) may have data available from efforts such as the citizen's lake assessment program or studies which they have hired a consulting engineer to perform.

On many segments, there will be little or no monitoring data available. Additional monitoring may be recommended. In the case of water quality problems which are perceived to be associated with runoff, such monitoring would emphasize storm events, especially those associated with spring snow melt conditions. Some prioritization of problem watersheds should be undertaken before the monitoring is initiated to assure that the most significant problems are addressed.

Modeling studies also have a role in the verification process, and whenever possible, should be used in conjunction with monitoring data. The models should be based on continuous simulation of hydrologic conditions and should be capable of relating water quality conditions to specific sources in a watershed or on the land surface. In some cases, models calibrated by limited monitoring data may provide adequate verification of a water quality problem.

Verification of nonpoint source related water quality problems through the analysis of existing data, the collection of new data or modeling studies may be done by the DEC Regional Offices, the DEC Central Office or another agency under the guidance of DEC. Because of the complex and episodic nature of nonpoint source pollution, expertise is needed in the proper collection of water quality monitoring data and interpretation of the results in terms of cause and effect. If monitoring is conducted by an outside agency, the verification scheme must be approved by DEC. The scheme must be subject to the same scientific principles and data quality assurance procedures that apply to all sampling and monitoring carried out by DEC.

E. Updating the Priority Water Problem List

The Division of Water will compile the next edition of the Priority Water Problem List in 1990. It will be issued in 1991. The list will remain as the Division's official list of surface waterbodies with water quality problems. For the update, the categories of impacts listed on pages 3 and 4 (precluded, impaired, stressed, threatened) will be used. It will be updated biennially after 1991.

Inputs to the process for updating the PWP list will be the existing PWP list, the list of segments nominated from the county nonpoint source meetings and any other segments identified as having water quality problems. Segments for which it has been confirmed that a problem exists will be added to the PWP list.

There will be other segments which were nominated that will be dropped because verification procedures will demonstrate that no problem or threat to water quality exists. Finally, for segments where no verification efforts have been performed, a separate list will be maintained. The segments will remain on this separate list until verification efforts confirm or refute the problem.

Between updates of the PWP list, the Division of Water will accept nominations for segments with problems not previously identified. Information will be reviewed by the Bureau of Monitoring and Assessment and the Bureau of Water Quality Management. They will then transmit the data to the appropriate DEC Regional Office for verification. Segments with verified problems will be added to the PWP list during the next cycle.

F. Use of Updated Assessment

The updated assessment will be used to prepare the inventory report required by Section 17-1405 of ECL. This report will identify waterbodies that have a designated use precluded, impaired, stressed or threatened. It will also identify significant categories of nonpoint sources that are affecting each waterbody. The report will be used to prepare a prioritized list of waterbodies as described in Section 17-1407. DEC will prepare this list after consultation with the State Soil and Water Conservation Committee. Only projects located within the watershed of a waterbody on this prioritized list will be eligible for cost-sharing assistance under the state nonpoint source pollution control program.

Other agencies involved with the implementation of NPS controls will be encouraged to select waterbodies which appear on the prioritized list for implementation efforts. Projects which address problems on other waterbodies may be accepted in some cases. However, water quality monitoring data verifying that water quality problems exist will be required in these situations.

G. Groundwater Problem Inventory

A system to collect information on groundwater quality problems must be established. The need for this system was recognized during the development of the Upstate and Long Island Groundwater Management Programs. Since groundwater management strategies are significantly different between Upstate and Long Island, the recommendations contained in each report will be discussed separately.

1. Upstate Groundwater Problem Inventory

The following information is taken from Chapter IV-B of the Upstate New York Groundwater Management Program completed in May, 1987 by DEC.

To properly evaluate groundwater program priorities and direct program activities, it is essential to know the types, frequency, severity, and trends of problems affecting the groundwater resource. The available information in this regard is currently rather sketchy and has been dispersed among various program areas.

To support effective program planning and provide feedback on program performance in the future, there is a need for a low-level, non-resource intensive but ongoing groundwater problem inventory.

The long-range goal for the Groundwater Problem Inventory is to develop and maintain a reasonably complete listing of groundwater problems encountered. This will be accomplished by periodically updating the inventory, therefore providing current and historical trends by which to assist management decisions.

It is not likely that the utopian ideal of a truly complete and comprehensive inventory can ever be attained, because it would require excessive resources compared to the benefits achieved. However, a stable, low-level effort can achieve a more valid representative sample to better assess the sources and geographic distribution of problems being encountered.

The Contaminated Aquifer Segment Inventory described below for Long Island serves as a model for the development of an upstate list.

2. Long Island Groundwater Problem Inventory

Long Island has a massive groundwater management-related database, which is probably as extensive as that found anywhere. Important categories of information include data on the aquifer system itself; water quality; well pumpage; important sources of groundwater contamination, particularly those regulated by permits; and others.

Organization of data on groundwater quality problems has been underway for some time. A Contaminated Aquifer Segments Inventory (CASI) has been assembled utilizing data from a number of agencies. The segments are drawn from environmental management programs which, through their operation, identify instances of groundwater contamination. The segment types include oil spills; contaminated public water supply wells; groupings of contaminated private water supply wells; contamination incidents identified through compliance and enforcement activities pursuant to water pollution regulations; state and federal Superfund sites, and miscellaneous identified contamination sites.

The Department's regional office is a member of a geographic information system (GIS) users group which shares data and is adding geographic locational data to existing data bases. Through this cooperation, data will be available to users with a minimization of duplicated effort.

The CASI will be the basis for the groundwater portion of revised assessment lists in the future for Nassau and Suffolk Counties.

CHAPTER III

MANAGEMENT PRACTICES FOR REDUCING NONPOINT SOURCE EFFECTS

The Clean Water Act recognizes the fundamental importance of the selection and use of best management practices (BMPs) to combat nonpoint sources of pollution. Management practices prevent or reduce the availability, release, or transport of substances which adversely affect surface and ground waters. They act generally to diminish the generation of pollutants from specific sources. This is in contrast to the control of point sources where the pollutants are generated and collected and then treated to prevent impairment of receiving waters.

Management practices can be operational, vegetative or structural. They provide an effective means of reducing or preventing the impact of nonpoint pollutants from a specific source category. Practices can be implemented through voluntary action, financial incentives or regulatory requirements.

This chapter lists the management practices currently recognized to benefit water quality and those which will be examined for inclusion in the list. All are subject to the review process described in Chapter IV of the Assessment Report.

"Best" management practices will be selected from this approved listing. A management practice or series of practices is considered "best" in the context of solving or preventing a particular nonpoint source problem in a specific area or in response to a generic statewide situation. For example, contour farming might be the best management practice on one farm while terraces are the proper treatment on another. Similarly, depending on soil and groundwater conditions, the best practice for controlling stormwater runoff in one area might be an infiltration basin while in another a wet pond would be appropriate.

A. CURRENTLY RECOGNIZED MANAGEMENT PRACTICES

1. Agriculture

The State Soil and Water Conservation Committee (SSWCC) was delegated the implementation of agricultural nonpoint source programs in the Statewide 208 report. In 1981, the Committee published a report listing 27 management practices to be considered in addressing problems. The appropriate BMP selection would be made after the problem and sources of the problem are identified and would be based on site-specific conditions. The practices are shown on Table III-1 along with the agricultural source subcategories to which they apply.

2. Silviculture

The Department of Environmental Conservation has issued a series of management practices for silvicultural activities. These practices are promoted by the Department and by other involved agencies and organizations and were certified as part of the Statewide water quality management plan at the conclusion of the Section 208 planning effort. They are incorporated into the joint DEC/NYS Timber Producer's Association Cooperating Timber Harvester Programs.

The practices and the areas of silvicultural activity which they address are shown in Table III-2. Selection of the appropriate practice or practices will depend on specific site analysis and is determined on the site by the harvester.

B. OTHER CANDIDATE PRACTICES

Appendix A of the Nonpoint Source Assessment Report listed candidate practices to be reviewed by the management practices task force. Some of the practices on this list appeared on the lists of approved practices contained in this chapter. Although these actions were approved in earlier efforts, they will be reviewed again by the task force before a final approved list is developed. As described in Chapter IV of the Assessment, the task force members will recommend to the Department those practices which will protect or improve water quality.

Since programs already exist for promoting and assisting in installation of agricultural BMPs, the practices which address that source category will have top priority for review. The Division of Water has prepared a guide to the effectiveness and selection of agricultural management practices for improving water quality. This effort was based on an extensive literature review. This guide will be given to the management practices task force for review.

Second priority will be for urban stormwater. The importance of that source plus the development of a regulatory permit program in compliance with the Clean Water Act call for this category to be addressed soon.

The approval of management practices for the remaining source categories will proceed as staff time permits. Priorities for categories will be established based on the extent of water quality problems caused by a particular source. The updated assessment lists will be used to determine the extent of problems.

The candidate practice list shown in Appendix A of the Assessment Report has been revised slightly and is repeated as Table III-3.

Table III-1
SSWCC Agricultural Management Practices

<u>Practice</u>	<u>Sources Addressed By Practice</u>				
	Row Crops	Fert. Appl.	Pest/ Herb.	Manure Spread.	Barn- Yard Runoff
Reduce excessive application rates of chemicals		x	x	x	
Timing of chemical applications		x	x	x	
Effective methods for applications		x	x	x	
Timing of field tillage operations	x				
Using alternative pesticides			x		
Using resistant crop varieties			x		
Reduced tillage systems	x				
No tillage	x				
Contour farming	x				
Graded rows	x				
Meadowless rotations			x		
Optimize planting time			x		
Winter cover crops	x				
Sod-based rotations	x	x	x		
Contour strip cropping	x	x	x	x	
Permanent vegetative cover	x				
Field borders	x				x
Filter strips	x				x
Terraces	x	x	x	x	
Diversions	x				x
Grassed outlets	x				
Surface drainage	x				
Subsurface drainage	x				
Retention ponds	x	x	x	x	
Roof gutters					x
Grade stabilization structure	x				
Chemical mixing center			x		

Table III-2
DEC Silvicultural Management Practices

	<u>Sources Addressed By Practice</u>			
	Logging Near Streams	Skidding	Crossing Streams	Logging Road Const/ Improper Landing Maint. Location
Obtain stream protection permit			x	
Cross stream at most direct route			x	
Use crossing sites with low, stable banks			x	
Cross streams at planned location			x	
Use and move temporary bridges and culverts to cross streams			x	
Avoid cutting within 10 feet of stream bank	x			
Don't skid up and down stream channel	x	x		
Avoid intermittent stream locations	x			
Keep skidders back 50 feet from streams	x	x		
Fell trees away from streams to keep debris out of water	x			
Remove logging debris that gets into streams	x			
Leave 50 feet uncut along streams	x			
Set back roads 150 feet from waterways on steep slopes	x			
Winch logs off steep slopes, minimize skidder traffic		x		
Log slopes during dry weather or when soil is frozen	x			
After logging, regrade roads and skid trails		x		x
Keep roads & skid trails away wet spots & stream banks	x	x		x
Use water bars, drainage dips and sloping to divert water off roads and primary skid trails		x		x
Keep roads back from stream, ponds and marshes				x
Stop roadside ditches before stream crossing			x	x
Choose road locations to minimize erosion problems				x
Keep landings out of low spots and poorly drained places				x
Locate landings on gently sloping ground				x
Keep landings back 200 feet from streams	x			x
Grade & level landings after use				x
Direct excess surface waters around landings				x
Prevent spillage of fuel and lubricants	x			

Table III-3
CANDIDATE MANAGEMENT PRACTICES

AGRICULTURE

Access road improvement
 Barnyard runoff management
 Biological controls*
 Conservation tillage
 Contour farming
 Cover crop
 Critical area planting
 Crop rotation*
 Cultural practices*
 Destruction of pest breeding
 and refuge sites*
 Diversions
 Ecosystem diversifications*
 Farming intensity
 Fencing (livestock exclusion)
 Filter strips
 Grassed waterway
 Integrated pest management (IPM)
 Knowledge of crop-pest ecosystem*
 Livestock crossings
 Manure application rate & method
 Manure storage & timing of manure
 application
 Mechanical weed control*
 Method of application*
 Mulching
 Nutrient management
 Pasture management
 Permanent vegetative cover
 Pesticide formulation/alternatives*
 Proper application rate
 Proper disposal of pesticides
 Resistant crop strains*
 Scouting*
 Sediment basin
 Slow-release fertilizer
 Soil testing
 Spreading schedules
 Streambank protection
 Stream channel stabilization
 Strip cropping
 Terraces
 Timing of application*
 Timing of tillage operations
 Timing of plant and harvest*
 Trap crops*

SILVICULTURE

Diversions of water from logging roads, (broad-based dips,
 culverts and water bars)
 Logging and skidding on steep slopes only under optimal
 conditions
 Pesticide use controls
 Proper access road design, construction and location
 Proper construction and location of stream crossing
 Proper location and use of log landings
 Reseeding and regrading
 Revegetation of critical areas
 Skidding and yarding along the contour
 Tree planting
 Vegetative buffer strip along stream

URBAN/STORMWATER RUNOFF

Artificial wetlands
 Collection and treatment of stormwater
 Concrete grid and modular pavement
 Diversions
 Extended detention ponds
 Drop-structures
 Fertilizer and pesticide application control
 Filter strips
 Fluidic flow regulators
 Tidy housekeeping
 Grassed swales and waterways
 Infiltration basins and pits (dry wells)
 Infiltration trenches
 Litter and leaf control
 Porous pavement
 Reduction of traffic-generated pollution
 Retention (wet ponds)
 Rock-lined channels
 Seepage areas
 Stormwater conveyance system storage
 Street cleaning
 Terraces
 Urban forestry
 Water quality inlet (oil/grit separators)

* Indicates an element of Integrated Pest Management when practice is used for reduction in pesticide applications.

Table III-3
CANDIDATE MANAGEMENT PRACTICES
(Continued)

**CONSTRUCTION AND
LAND DEVELOPMENT**

Critical area seeding
Debris basin
Design codes for septic systems
Diversion
Earth dike
Erosion and sediment control ordinance
Filter fabric
Grade stabilization structure
Grassed waterway
Land grading
Lined waterway or outlet
Mulch
Perimeter dike swale
Riprap
Rock outlet protection
Sediment basin
Sediment trap
Silt fence
Sodding
Stabilized construction entrance
Straw bale dike
Subdivision ordinances
Subsurface drain
Sump pit
Temporary storm drain diversion
Temporary rules and regulations
Temporary swale
Tree planting
Watershed rules and regulations
Zoning

STREAMBANK EROSION

Gabion baskets
Livestock exclusion
Log cribbing
Proper stream crossings
Riprap
Vegetative buffer strips

RESOURCE EXTRACTION

Diversions
Drilling pits lined with impermeable plastic
Install fluid dikes capable of handling 1 1/2 times tank
volume around production tanks
Limit stripping of topsoil and overburden
Maintain drainage into excavation
Orient drilling pits to minimize degradation
Recycle process waters
Require removal of drilling and completion fluids
from pits within 45 days; pits then backfilled
Restrict siting of tank farms and production facilities
in proximity to waterbodies
Revegetate inactive stock piles
Settling ponds
Stabilize active faces as soon as practicable

ROADWAY AND R-O-W MAINTENANCE

Construction contracts contain erosion and sediment
control requirements
Deicing minimized consistent with highway safety
Impervious base in salt storage areas
Pesticide use controls
Proper sheltering of salt storage
Salt storage located safe distance from waterbodies
Sheltering of salt and sand mixing areas
Vegetative buffer strip between road and waterbody
Vegetated road ditches

CHEMICAL AND PETROLEUM BULK STORAGE

Facility registration
Keeping of inventory records
Monitoring for leakage
Proper closure of abandoned facilities
Reporting of actual or suspected releases
Standards for new construction
Testing and inspection

CHAPTER IV

PROGRAMS TO CONTROL NONPOINT SOURCE POLLUTION

Overall control of most nonpoint source pollution problems cannot be accomplished through a single program. This is due to the variety of sources that are considered nonpoint sources. Nonpoint source pollution is associated with both long-term fixed land uses and more sporadic and transitory activities. Programs for the control of sources must be developed recognizing this diversity. Pollution from most nonpoint sources is best controlled through the use of proper management practices that can alleviate any existing water quality impacts and prevent new ones from occurring.

A. Categories of Sources

Land uses and activities which are considered nonpoint sources are listed in Chapter I as Table I-2. The table identifies the major source categories and the sub-categories included in each. A discussion of known and suspected effects of the sources is contained in Chapter III of the Assessment Report.

A brief description of each of the source categories for which control options will be discussed follows. The main source categories are listed in alphabetical order both here and in the detailed discussion of sources later in this chapter.

- Agriculture

Agriculture is a leading industry in New York State and a critical sector of the State's economy. In 1987, nearly 8,600,000 acres were devoted to agricultural activities. Since agricultural land is often managed intensively, runoff can cause water quality problems. Poor land management and intensive production activities on agricultural land can result in pollution of waters by sediment, nutrients and agricultural chemicals.

Agricultural nonpoint sources of pollution can be classified into two groups: land use and management operations. The first group relates to the actual use of a parcel of land (e.g., row crops, pastureland, and truck farms). The second group relates to the intensity of an agricultural operations (e.g., cultural techniques, pesticide and fertilizer applications, grazing techniques and manure utilization). Agricultural nonpoint sources of pollution are not a result of the land use or the operations themselves, but the inappropriate use of the land (e.g., growing row crops on land not suited for intensive cultivation), and improper management of the agricultural operation (e.g., over-fertilization or misapplication of pesticides), which

increases the opportunity for contaminants from agricultural activities to reach either ground or surface waters.

- Atmospheric Deposition

Atmospheric deposition and the subcategory of acid rain have been identified as the most frequently occurring cause of water quality impairment in the state. While acid rain affecting lakes in the Adirondack Mountains is the dominant source identified, atmospheric deposition in general is considered to be affecting waterbodies in other parts of the state as well. In addition, pollutants other than acid rain are causing water quality problems. Atmospheric deposition of contaminants on urban impervious areas adds to the pollution of stormwater runoff.

- Construction

Each year nearly 50,000 acres of land in New York comes under development through public and private construction activities. Although this represents a small portion of the state's land area, sedimentation due to both water and wind erosion at construction sites can be locally severe. Studies have shown that rates of erosion from construction sites are among the highest of any source category.

- Contaminated Sediment

Contaminated sediment has resulted in fishing advisories and fishing bans on several major waterbodies in the state. Lake Ontario and portions of the Hudson River are affected by this source. PCBs are the most common contaminant although other toxic chemicals such as dioxin, DDT, mirex and mercury are other examples.

- Diffuse Urban Runoff

Stormwater runoff from urban areas can be contaminated with sediment, oxygen demanding substances, pathogens, petroleum products and a number of toxic substances. The large amount of impervious surfaces in an urban area increases the quantity of runoff and decreases the time it takes for peak runoff to occur. These factors can lead to increased flooding in addition to the water quality problems resulting from the pollutant load.

- Hydrologic/Habitat Modification

The hydrologic/habitat modification category includes a variety of changes to rivers and streams. Some of the items included here involve changing the flow characteristics by construction or operation of a dam. Another important item is destabilization of streambanks which leads to erosion and sediment problems. Removal of riparian vegetation can increase water

temperatures in a stream which may have an effect on fish survival. Changing land use patterns within the watershed can result in increased runoff and lead to streambank erosion problems.

- Land Disposal

Land disposal of solid wastes and wastewater can result in the contamination of groundwater and may eventually affect surface waters. The most common problem sources within this category are landfills, abandoned hazardous waste sites and on-site wastewater disposal systems. The Assessment Report identifies on-site systems as the most evenly distributed problem source among all source categories found across the state.

- Leaks, Spills and Accidents

This category is primarily a groundwater concern although some surface waterbodies have also been affected. Petroleum products were originally the focus of concern in this category. The Environmental Conservation Law (ECL) now regulates the storage and handling of most hazardous materials.

- Resource Extraction/Exploration/Development

Sand and gravel mining as well as oil and gas well fields are the most significant sources in this category. Sand and gravel operations account for 85% of the mining in the state. Most of the oil and gas well fields are located in the western and central parts of the state.

- Silviculture

Forest harvesting activities affect a small percentage of the total acreage of woodland in New York each year. However, water quality problems due to sediment and thermal stress can result if proper techniques are not followed. Improper landing locations, poor logging road construction techniques and logging adjacent to streams can result in water quality problems.

- Roadbank Erosion

Erosion from unvegetated ditches along state, county and local roads is believed to be a significant source of sediment during spring runoff each year. Many highway departments clean ditches in the fall, leaving no time to reestablish vegetation before winter. Spring runoff then results in significant erosion.

- Storage and Application of Deicing Agents

Road salt storage piles have been responsible for contamination of groundwater in many locations across the state. Application of salt is regarded as a potential problem in many

areas. Road sanding has been identified as a problem on a number of streams in the Adirondack Mountain area.

B. Pollutants and Their Effects

Pollution from nonpoint sources generally occurs during hydrologic events, such as rainfall or snowmelt, or under heavy wind conditions. The pollutants are usually transported during these events, although some sources, such as failing on-site septic systems or contaminated sediments, can deliver pollutants at any time. Pollutants dissolved in runoff are generally more biologically available in waterbodies than sediment-based fractions and thus are potentially more damaging.

Table IV-1 is a summary of common nonpoint source pollutants and a description of some of their effects.

C. Control Options

Government programs that can be used to control nonpoint source pollution use one or more of the following control options to accomplish program goals.

1. Planning

Programs that address nonpoint source pollution through planning can focus on statewide or local (watershed) issues. Planning, in this context, includes such activities as inventory, assessment and monitoring. It also includes any activities used to develop Management Practices and to develop the institutional mechanisms to facilitate and ensure their delivery when and where needed.

2. Regulatory Programs

Regulatory programs can also be either statewide or watershed-based. An example of the latter would be watershed rules and regulations developed and enforced locally. Regulations could apply to the use of land or activities upon the land. They can also apply to the handling, use and storage of specific substances, such as petroleum products or pesticides. Regulations can also be used to control discharges or waste disposal onto land or into surface or groundwaters. The federal government can use regulatory authority by controlling or banning an activity. This will be used particularly for interstate commerce issues.

3. Direct Government Action

An agency of a federal, state or local government can decide to act directly to prevent or remedy a nonpoint source problem. Examples of such actions include removing contamination, building

Table IV-1
Summary of Nonpoint Source Pollution Effects

Sediment

Sediment may destroy fish habitat through blanketing of fish spawning and feeding areas and elimination of certain food organisms; directly impact fish through gill abrasion and fin rot, and reduce sunlight penetration, thereby impairing photosynthesis of aquatic plants. Suspended sediment decreases recreational values, reduces fishery habitat, adds to the mechanical wear of water supply pumps and distribution systems, and adds to treatment costs for water supplies. Nutrients and toxic substances attached to sediment particles are transported to waterbodies and may enter aquatic food chains, cause fish toxicity problems, impair recreational uses, or degrade the water as a drinking water source.

Thermal Stress

Elevated stream temperatures can exceed fish tolerance limits, reducing survival and lowering disease resistance. Cold water fish (such as trout) may be eliminated or the habitat may become marginally supportive of the fishery.

Nutrients

Nutrient (phosphorus and nitrogen) enrichment of surface waters may cause excessive algae and aquatic plant growth, choking open waters and consuming oxygen (mainly through plant die-off). Fish and aquatic organisms, recreational values, and the use of the resource for water supply are thereby impacted. Nitrogen contamination of drinking water significantly above the drinking water standard may cause methemoglobinemia (a blood disease) in infants and cattle, and has forced closure of several water supplies (primarily wells).

Oxygen-Demanding Substances

Organic materials may enter surface waters dissolved or suspended in runoff. Natural decomposition of these materials may deplete dissolved oxygen supplies in the surface waters. Dissolved oxygen (DO) may be reduced to below the threshold necessary to maintain aquatic life, impairing or killing fish and other aquatic biota.

Toxic Substances

Toxic chemicals may enter surface waters either dissolved in runoff or attached to sediment or organic materials, and may enter groundwaters through soil infiltration. The principal concerns in surface waters are their entry into the food chain, bioaccumulation, toxic effects on fish, wildlife and microorganisms, habitat degradation, and potential degradation of public water supply sources. The groundwater impacts are primarily related to water supply sources.

Pathogens

Bacteria and viruses include infectious agents and disease-producing organisms, normally associated with human and animal wastes. The principal concerns are the survival and transmission of such organisms and their impacts on drinking water supplies, shellfish, contact recreational waters, and fish and wildlife or domestic animals.

control structures or changing water flow. Dredging contaminated sediments or drilling and pumping a diversion well are specific activities that a government might undertake if circumstances warranted.

4. Financial Incentives

Financial incentives include direct grants, low or no-interest loans, tax breaks, cost-sharing and cross-compliance between programs. Some of the programs listed in the Assessment Report provide full or partial funding for specific activities, usually at the local level.

5. Research and Demonstration Projects

Some of the programs listed promote research and demonstration projects. These projects typically will show how a certain land use practice or series of practices can reduce pollutant loadings from nonpoint sources. Demonstration projects can be designed to test the effectiveness of promising practices in real-world applications, to gain experience with design parameters of new practices and/or to attract attention to new practices. Such projects may focus on a specific source category, such as manure spreading or landfill leachate. They may measure the effectiveness of certain control measures, such as planting vegetative buffer strips or using a new impermeable material to line landfills. Projects may also be tailored to specific watersheds.

6. Technology Transfer

Although "technology transfer" is a type of education, it is considered to be a distinct enough activity to have its own category in this report. Technology transfer implies a narrowly-targeted audience which will utilize or directly apply the technology. It can be broken into two categories: technical assistance and professional training. Technical assistance is working directly with a landowner, a planning board, or a land user to implement management practices which will resolve an identified problem. Technical assistance is site-specific and accounts for site conditions. Professional training is commonly used to help professionals better perform as technical assistants. It is more general in nature focusing on advantages and disadvantages of practices but not on specific sites.

7. Education

Education programs to address nonpoint source pollution include any material provided as school (K-12) curriculum, or targeted for children of school age through organizations such as Scouts or 4-H. It includes any general pre-professional training offered in colleges and universities. Also in this category are the full range of continuing education courses of long or short

duration offered to adults through institutions such as high schools, BOCES or Cornell Cooperative Extension System. Public information and public awareness activities are included as education programs. Examples are publications, radio or television public service announcements, slide/video shows and events such as DEC's Water Week.

D. Existing and Needed Nonpoint Source Control Programs

The Assessment Report listed 58 programs that have a role in the control of nonpoint source pollution in New York. Some of these programs have water quality as their primary focus while for others, water quality improvement is a secondary benefit. Several additional programs that were previously overlooked were identified during the development of the management program. These programs are described in the sections dealing with specific source categories.

It is assumed that all existing programs will continue to contribute to controlling nonpoint source pollution. The management program will build on these existing efforts. In some cases, expansion or redirection of existing programs will be recommended, while in others new programs will be needed.

The remainder of this chapter will provide a basic plan for controlling nonpoint source pollution in New York. The additional program needs will be divided into two categories based on whether or not legal authority exists to carry out the recommendations. The recommendations which use existing legal authority can be implemented in the short term while those that require legislative action should be considered long-term goals.

The first section will deal with program recommendations that do not apply to any specific source category. These are general activities related to problem inventories, watershed planning and educational activities. Remaining sections will each address a specific source category. Source categories are listed in alphabetical order. For each category, there will be an assessment of the source and its effects on water quality in New York, a brief description of existing programs that address the source, and a list of additional program needs.

1. General Management Activities

a. Assessment of Source

A fundamental activity within the overall management approach for nonpoint sources is assessing the sources or origins of their water quality effects. The Assessment Report provides listings which demonstrate the extent of nonpoint source pollution across the state. More than 80% of the impaired waterbodies in New York are impacted by nonpoint sources. More specific discussions of the

effects of particular source categories will be contained in the sections which deal with those sources.

b. Current Programs to Control Source

All of the programs listed in the Assessment Report are part of the effort to control nonpoint source pollution. This section will discuss the programs which address a number of different categories of sources. Some of these are monitoring programs that measure water quality without regard to source. Others are regulatory programs which can apply to several nonpoint sources.

The Division of Water has several programs which assess water quality through monitoring and mapping. The Rotating Intensive Basin Studies and Intensive Stream Surveys are both monitoring efforts which identify water quality problems. The Groundwater Mapping Program identifies vulnerability of aquifers to pollutants and their sources. The Citizen's Lake Assessment Program is jointly administered by the Division of Water and the N.Y. Federation of Lake Associations. It involves routine water quality sampling of lakes to build baseline data and to identify lake problems. The Lake Classifications Inventory samples lakes and classifies them according to trophic status. The Adirondack Lake Survey Corporation monitors the changes in pH and productivity brought about by acid precipitation.

There are several planning programs that deal with water quality in specific regions. These programs will identify the water quality impacts of all sources, both point and nonpoint. The National Estuary Programs for Long Island Sound and the New York-New Jersey Harbor are efforts initiated to meet requirements of the Federal Clean Water Act. The Great Lakes basin is another area which is being studied intensively. Remedial Action Plans (RAPs) are being developed for areas of concern within the basin. These plans will identify measures to control existing sources and may recommend treatment measures. In addition to the RAPs, toxic management plans are being developed for Lake Ontario and the Niagara River. A phosphorus reduction strategy is another initiative in the Great Lakes basin. This strategy was developed to meet target phosphorus loads established for Lakes Erie and Ontario by 1990.

Some of the regulatory programs identified in the Assessment Report are designed to protect resources without regard to a particular category of nonpoint source. Several of these programs deal directly with water quality while others regulate land usage in a manner which will have water quality benefits. The programs that address water quality directly will be listed first.

The Stream Reclassification Program of the Division of Water is updating water use classifications for waterbodies across the state. The Shellfish Land Certification Program classifies waters

as to whether they are certified for harvesting shellfish. The Division of Marine Resources administers this program. The NYS Department of Health's Public Water Supply Program is responsible for the safety of public drinking water supplies. In assuring the delivery of potable water, they are concerned about any activities within a watershed that could adversely affect drinking water quality. In cases where watershed rules and regulations have been adopted, DOH has regulatory controls over activities within the watershed.

There are several general regulatory programs which focus on land usage. Most of these have limited geographic applicability. The one program which applies statewide is the SEQOR process. It is part of both regulatory and planning processes. It ensures that all state and local government agencies will assess the environmental impacts of any action that they take or approve.

The other programs apply to specific geographic areas. The Adirondack Park Agency (APA) has a variety of programs which regulate land usage within the Adirondack Park. One of the programs administered by the APA in the Park is the Wild and Scenic Rivers Program. This program protects outstanding rivers and their corridors by activities that would have an adverse impact on the river. DEC administers the programs along designated rivers outside the Adirondack Park. The Delaware River Basin Commission and the Susquehanna River Basin Commission have regulatory authority in the area of water resources management within the entire river drainage areas.

Another program which uses the regulatory approach and addresses all nonpoint sources in certain areas is the NYS Department of State's Coastal Management Program. Within the coastal area boundary, including the marine district, the Hudson River and the Great Lakes, local government's waterfront revitalization programs regulate land usage and require BMPs to mitigate nonpoint source problems. However, the local government must have an approved program before this authority can be used to regulate land usage.

There are other programs which address a number of nonpoint sources and use a variety of control options. The Clean Lakes Program is administered by the Division of Water. It includes planning, education, technical and financial assistance for both remedial and preventive programs around a lake. The Water Resources Institute at Cornell University uses planning, education and technology transfer to address the full range of nonpoint sources.

Soil and Water Conservation Districts focus on a variety of nonpoint source categories. The program in each county is adapted to meet local needs. While agriculture is the primary source addressed in most counties, all districts deal with other sources

as well. Thirty-four districts are now involved in urban erosion and sediment control. In response to a particular need in their counties, many districts have developed programs to deal with specific nonpoint sources. Examples of source programs include stream corridor management (Rensselaer County), stormwater management (Westchester County), and on-site sewage disposal (Delaware County).

The Nonpoint Source Water Pollution Control Program, established by Chapter 436 of New York State Laws of 1989 (see Appendix C) includes planning activities and financial incentives. DEC is required to identify waterbodies affected by nonpoint source pollution and list the categories of sources that are causing the most problems. This inventory must be updated at least every 5 years. The law also includes provisions for a cost-sharing program to address problems caused by non-agricultural nonpoint sources. A separate cost-sharing program, administered by the State Soil and Water Conservation Committee, is available for agricultural sources. The law also amends the Soil and Water Conservation District Law to include the control and abatement of nonpoint sources of pollution in the District's responsibilities.

c. Additional Program Needs

Some of the activities that will be required to address nonpoint source pollution in New York do not apply to any one source category. These activities are related to program planning and oversight. They include assessing the condition of the water resource and problems affecting the resource, providing overall program direction and oversight, and developing programs for the general protection of the resource.

Recommendations Using Existing Authority

1. The assessment of waterbodies and groundwater affected by nonpoint source pollution must be updated periodically. An initial update of the assessment of surface waterbodies is being conducted using the procedure described in Chapter II. Recommendations for updating the groundwater inventory are also given in Chapter II.
2. Using information obtained from the updated assessments, corrective plans should be developed for watersheds with significant problems. These plans should consider the effects of all sources (including point sources) present within the watershed. The plans should include all steps needed in the analysis of a watershed. The analysis begins with monitoring to confirm problem sources and ends with documenting improved water quality from implementation of control practices. The watershed planning process is described in Chapter V of this

report. A document which details the process described in Chapter V is needed to guide agencies through the process. One caveat to be observed in identifying watersheds for planning is that some waters are adversely affected by sources well beyond their drainage boundaries (such as those affected by atmospheric deposition).

3. The standard methodology for watershed planning and analysis described above should be tested through a research/demonstration project on a waterbody impaired by nonpoint sources.
4. The principal method for preventing or remediating nonpoint source pollution is employing "best management practices." A list of approved management practices should be established and distributed using the procedure described in Chapter IV of the Assessment Report. A catalogue of approved management practices will be prepared for each significant nonpoint source category. "Best" management practices will be selected from this approved listing as part of the watershed planning process described in Chapter V of this report.
5. The state cost-sharing program established in the 1989 nonpoint source water pollution control law would provide financial assistance for the implementation of best management practices to control nonpoint sources where they are causing water quality problems. The law gives DEC and the State Soil and Water Conservation Committee the authority to promulgate regulations to implement this program. These regulations should be developed.
6. Increased educational efforts are needed to make the public aware of the impacts on water quality caused by various nonpoint sources. Both general initiatives and targeted programs are required. The general initiatives will be designed to make the public aware of the extent of problems caused by nonpoint sources. For some sources, specific groups such as local government officials will be the primary audience. More details on these situations will be discussed in the sections which concentrate on the specific source categories.

There are several agencies who should have an active role in these efforts. DEC should provide overall coordination for the program to assure that efforts are consistent with the management program. An entity with expertise in community outreach activities such as the Cornell Cooperative Extension System and the New York State Water Resources Institute might handle the development and implementation of the program.

7. A targeted education initiative aimed at local officials is needed to make them aware of the role of local government in protecting and preserving water resources and the control options available to them. Water quality management principles should be factored into local zoning, land use and site plan review decisions. Consideration should be given to using watershed rules and regulations to protect critical watersheds. A manual that outlines the control options and explains how they can be incorporated in local planning efforts is needed.
8. Another educational program need is an information clearinghouse. This clearinghouse would collect reports on nonpoint source research, demonstration and implementation projects around the state. The information would then be readily available to people in a position to use it. The Water Resource Institute might be the best agency to implement this recommendation.
9. There are a number of existing programs administered by federal, state and local agencies which provide the basis for any efforts to control nonpoint source pollution. DEC should provide overall program oversight and coordination for the nonpoint source program through the establishment of defined coordination links with key agencies. Where appropriate, Memorandums of Understanding between DEC and other agencies should be developed to coordinate water quality improvement efforts. The MOUs will help set direction for targeting of cost-sharing funds as well as technical assistance, technology transfer and educational efforts to solve documented water quality problems.
10. As stated in the January, 1989 Water Resources Management Strategy, water supply sources should be protected through watershed rules and regulations.
11. A technology transfer program should be developed to provide, where needed, water quality training to staff of county agencies that are involved in the control of nonpoint source pollution.
12. A planning effort is needed to develop a procedure for counties to use in preparing a county water quality strategy. A list of the agencies and groups that might be involved in preparing the strategy and a list of factors to be considered in establishing county priorities among identified waterbodies should be included in this guidance.

2. Agriculture

a. Assessment of Source

Nearly one-third of New York's land area is devoted to agriculture with approximately 5.8 million acres used as cropland. The extent and intensity of this major land use leads to concern about agriculture's contribution to nonpoint source pollution. Agricultural operations and land resources are highly visible. Agricultural activities often include soil disturbance in preparation for planting, fertilizer and pesticide applications, concentrated animal populations and animal waste storage and disposal.

Water quality problems generally arise when improper management and/or inappropriate land uses are part of the agricultural operation. In these instances sediment, nutrients, and pathogens as well as organic and inorganic materials may migrate from the farm into surface and ground waters where they may have an adverse impact. Agricultural nonpoint sources are generally associated with the detachment and subsequent movement of soil particles by water or wind or the direct transport of dissolved agricultural pesticides and nutrients by runoff to surface waters or infiltration to groundwater. Therefore, agricultural nonpoint sources are generally associated with hydrologic events, rainfall and/or snowmelt, or heavy wind conditions.

Agricultural nonpoint source pollutants include soil erosion, nutrients, pathogens and oxygen demanding substances. Areas of animal concentrations including overgrazed areas can contribute nutrients, organic matter, ammonia and pathogens. Removal of riparian vegetation and unrestricted livestock access to streams can result in increased streambank erosion as well as increases in stream water temperature which adversely affects fish survival and propagation.

It is difficult to estimate the extent to which New York agriculture or other nonpoint sources causes impairment of the state's waters because a consistent statewide evaluation has never been done. However, there appears to be potential for adverse impacts on water quality from agriculture since it involves the use of so much land. There are known waterbody impairments resulting from agricultural activities and numerous research studies link agricultural land use to increased levels of some contaminants.

The Nonpoint Source Assessment Report indicates that, in New York, lakes and impoundments are more likely affected by agricultural nonpoint sources than streams or rivers. This is logical since these waterbodies are often the depositories for the sediment, nutrients, organic matter and chemicals lost from agricultural land. Furthermore, lakes and impoundments more

readily manifest the consequences of these contaminants, regardless of the source.

The PWP includes 22 segments across the state where agriculture is the primary source of impairment. The Assessment Report listed 31 segments with perceived agricultural nonpoint source impacts from the 10 counties included in the pilot assessment conducted by the NYS Department of Environmental Conservation and the NYS Soil & Water Conservation Committee. The latter number would indicate that the number of segments perceived to be affected by agricultural sources will increase as the assessment is updated.

b. Current Program to Control Source

Technically, there are few existing agricultural programs which directly focus on the control of nonpoint sources of pollution. There are a variety of programs administered by several local, state and federal agencies whose objective is to conserve and manage the soil and water resources. In many cases these programs do have a secondary benefit of improved water quality because of the nature of agricultural NPS contamination. Programs currently available include financial incentives, technical assistance, technology transfer and education. These programs are administered by:

Federal:

- United States Department of Agriculture - Agricultural Stabilization and Conservation Service (ASCS)
- United States Department of Agriculture - Soil Conservation Service (SCS)
- United States Department of Agriculture - Farmers Home Administration (FmHA)
- United States Department of Agriculture - Extension Service (USDA-ES))

State:

- New York State Department of Environmental Conservation (NYSDEC)
- New York State Department of Agriculture and Markets (A&M)
- New York State Soil and Water Conservation Committee (SS&WCC)
- Cornell University, College of Agriculture and Life Sciences, and New York Water Resources Institute (WRI)

Local:

- County Soil & Water Conservation Districts (SWCD)
- County programs of the Cornell Cooperative Extension System (CCES)
- County Agricultural Stabilization and Conservation Committees

The programs offered by these agencies generally operate on a voluntary basis. Although staff may perform outreach activities to encourage participation, it is the individual farmer's decision whether or not to participate.

Federal initiatives to control agricultural nonpoint sources of pollution are primarily financial incentives. USDA-ASCS administers the Agricultural Conservation Program (ACP). The program helps solve soil and water resource problems through cost-share assistance. Included in the ACP is a national water quality special project program. Through this special program, local ASCS Committees are encouraged to prepare requests for additional financial and technical assistance to carry out programs to improve water quality in identified problem areas.

The USDA-SCS includes land treatment alternatives in P.L. 83-566, the Small Watershed Protection Act, to provide for increased technical and financial assistance to farmers within watersheds with identified agriculturally-related water quality problems.

USDA's Chesapeake Bay program operates through increased technical and financial assistance and increased public awareness. Most of these efforts focus on agricultural activities and can be used in the Susquehanna and Chemung Basins of New York.

Other federal initiatives which are not targeted toward but which have side benefits of improved water quality focus on conservation of the soil resource base through technical and financial assistance for soil conservation management practices. The framework of this program is the Agricultural Conservation Program (ACP) administered by the ASCS which provides financial assistance and the Conservation Operations program of the SCS which provides technical assistance to plan and install the necessary control measures. This work is done in conjunction with local Soil and Water Conservation Districts.

Taking direction from the Resources Conservation Act (P.L. 95-192), SCS has identified protection of the quality of ground and surface water from nonpoint sources as the agency's second priority. The first priority is to reduce the damage caused by

excessive soil erosion of rural lands. As a result of these priorities, SCS has adopted a water quality policy which states, "The Soil Conservation Service will integrate water quality concepts, considerations, and management techniques into appropriate programs." Furthermore, SCS has developed an action plan which integrates water quality into the Conservation Operations Program. This includes providing the information, tools and training required by SCS field personnel to implement this policy.

Congress introduced the concept of "conservation compliance" to the USDA through the Food Security Act of 1985. This Act contains provisions that link eligibility for most USDA agricultural program benefits and commodity payments to proper land management. This voluntary program requires farmers to reduce soil erosion to an acceptable level in order to remain eligible for most USDA program benefits. The primary provisions, called "sod-buster" and "swamp-buster", discourage the conversion of highly erodible lands and wetlands to cropland. Although the focus of the Food Security Act is not NPS reduction, the soil erosion control provision can provide water quality benefits.

The Food Security Act of 1985 also established the Conservation Reserve Program (CRP) to reduce the amount of highly erodible land already in production. The CRP allows a farmer to enter into a contract with USDA to establish permanent vegetative cover on highly erodible cropland currently under cultivation. In return for the loss of the land's crop production, the farmer receives rental payments from USDA. The CRP has recently been amended to allow farmers to install vegetated buffer strips of land along streams under the program. These replace vegetative cover on streambanks, thereby reducing the delivery of NPS contaminants in runoff to the stream. In 1988, CRP was amended again to allow farmers to enter "scour erosion" and wetland areas into the program. Scour erosion areas are cropland areas within a floodplain which are regularly eroded by flood waters. Wetlands must have previously been under cultivation.

State programs for the control of agricultural NPS are predominantly technology transfer programs, with the exception of the Pesticide Management Program administered by DEC. Under this program, DEC registers pesticides, certifies applicators, and conducts inspections of pesticide applications. Authority for the Pesticide Management Program is contained in the Environmental Conservation Law.

Many technology transfer programs identified in the Assessment Report are administered by DEC. Programs such as the Great Lakes Phosphorus Reduction Plan, the Stream Corridor Management Program and the Stream Habitat Improvement Program all attempt to convince farmers to modify their practice in a manner that will reduce

nonpoint source pollution. Many of the programs are locally sponsored by Soil and Water Conservation Districts. The groundwater program uses the planning option in studying the effects of pesticides and fertilizers on groundwater.

Chapter 436 of the New York State Laws of 1989 (see Appendix C) amends soil and water conservation districts law to include the improvement of water quality and the control of nonpoint sources of water pollution in the areas of concern for districts. The law establishes a matching grant program to implement agricultural nonpoint source abatement and control projects. The grant program will be administered by the State Soil and Water Conservation Committee. Projects must be located in the watershed of waterbodies identified by DEC as being affected by nonpoint source pollution.

The Water Resources Institute at Cornell University operates state and federally funded programs using education and technology transfer options. The Institute has conducted a grants program, primarily within Cornell and Cornell Cooperative Extension, to fund water quality research and demonstration projects, including public education programs. They also have sponsored conferences, short courses and workshops on water quality management. The Institute has also frequently served as a vehicle for catalyzing Cornell University faculty involvement in research, education, and technology transfer related to New York's water problems.

The Cornell Cooperative Extension System and County Soil and Water Conservation Districts also play a key role in nonpoint source water quality management. Both are administered at the state level -- by Cornell and the New York State Soil and Water Conservation Committees, respectively -- but are implemented at the county level. Both have extensive program delivery networks and use technology transfer and direct technical assistance as the primary control options.

One of the key technology transfer programs of the Cooperative Extension is to disseminate the principles of integrated pest management (IPM). The goal of IPM is to achieve acceptable pest control with a minimal use of chemical pesticides.

The Cooperative Extension also sponsors educational programs while the Soil and Water Conservation Districts (SWCD) administer some financial incentive programs. The SWCDs also administer a provision of the New York Soil and Water Conservation District Law that requires farms 25 acres or larger to have a conservation plan which includes management practices to reduce soil erosion. Implementation of the plan, however, is purely voluntary.

All these programs have benefited water quality, although there is no way to accurately measure how much. An estimated 90% of New York farms have conservation plans, but a much lower

percentage are carrying out management practices. The Food Security Act of 1985 will encourage farmers to implement management practices on cropland. Through September 1989, a total of 50,500 acres of highly erodible cropland has been placed under contract through the conservation reserve program in New York.

c. Additional Program Needs

Present federal and state programs to control nonpoint source pollution from agricultural sources utilize both technical assistance and financial incentives. The programs are predominately voluntary. Technical assistance is available through SCS and Soil and Water Conservation Districts to all land users to help resolve natural resource problems. Recent SCS policy directs consideration of water quality concerns in this program. Financial assistance is available to all land users through a variety of programs administered by ASCS, FmHA and SCS. The Food Security Act of 1985, however, introduced the "conservation compliance" provision which links eligibility for USDA program benefits and commodity programs to proper land management. The program is still voluntary since the farmer may choose to not receive government assistance.

Most current federal technical and financial programs do not focus on water quality. They are available to all agricultural operators regardless of their proximity to water quality problem areas. There are two federal programs which do target problem areas: the ASCS national water quality special projects and the SCS land treatment watershed projects described earlier in this chapter. Limited federal funding, however, restricts the widespread use of these programs.

It is unlikely that present programs by themselves will be effective in successfully implementing management practices to control agricultural nonpoint sources. Other control options including some which may require new authority are needed.

Recommendations Using Existing Authority

1. At the state level, planning programs should investigate mechanisms to minimize the impact of agriculture on water quality. The planning efforts should concentrate on source subcategories which have been identified as causing significant problems. Development of management practices and investigation of other control options to address these subcategories should receive priority.
2. Research projects are needed to examine commonly used soil and water conservation practices. The studies should consider the effect of the practices on all aspects of nonpoint source pollution including the movement of contaminants into groundwater and surface

waters and the effects of such practices on groundwater quality.

3. The feasibility of low-input or low-intensity agriculture should also be investigated through research and demonstration projects. Low-input agriculture consists of minimal fertilizer input, optimal crop rotations, grasslands management and extensive use of Integrated Pest Management.
4. Another state level research effort needed is to study the long-term water quality benefits of land remaining in agricultural use instead of being developed. Realistic approaches for agricultural land use preservation should be recommended if it is determined to be desirable.
5. Farm level planning should consist of comprehensive agricultural operation plans that address both macro and micro water quality concerns. The plans must go beyond soil erosion practices and identify management practices that control the availability and transport of sediment, nutrients and agricultural chemicals. Commonly used soil erosion management practices must be examined for their effect on all aspects of nonpoint source pollution including the movement of contaminants into groundwater. Existing laws can be used to encourage the integration of water quality concerns into farm conservation plans prepared for all agricultural operations in excess of 25 acres.
6. Memorandums of understanding between DEC and federal agencies that administer financial incentive programs should be developed. These MOUs should require that water quality problems be considered in selection of projects to receive money.
7. Existing programs which provide technical assistance to farmers for addressing water quality problems should be expanded. Additional field personnel, trained to integrate water quality concepts in the application of management practices, are needed. The expertise required to go through the watershed planning process will have to be developed at the local level.
8. More technology transfer and education programs are needed to address management of animal waste related to the dairy industry. A considerable body of knowledge has been accumulated at Cornell University through recent research projects, but needs to be disseminated to farmers for practical application. Management practices available include manure spreading schedules, barnyard runoff controls, manure/tillage systems and others.

9. Educational programs to make farmers and landusers aware of water quality problems which can result from improper land management are needed. The goal should be to increase the awareness of the plant/soil/water relationships which control the driving mechanism for nonpoint source pollution.

Recommendations Which Will Require New Authority

10. State level use of the concept of cross-compliance should be investigated, including the feasibility of utilizing the Agricultural Districts Law, the Agricultural Assessment Law and the Farm Planning Law. Eligibility for property tax relief could be tied to implementation of the farm plan. Eligibility for cost-share assistance and/or income tax credits could also be used to encourage compliance.
 11. Alternatives to voluntary participation in conservation programs should be explored. Some form of regulation, incentives or disincentives can be used to encourage identified polluters to install necessary practices. While cost-sharing and technical assistance would be available to implement farm plans on farms that are identified as polluters, a system must be in place to assure that the plan is followed. Incentives in the form of tax deductions or credits should be considered to encourage farmers to implement their farm plans. Penalties in the form of fines could also be considered.
 12. It has been reported that the Federal Farm Bill will be amended in 1990. The new bill should include an emphasis on water quality concerns.
3. Atmospheric Deposition
 - a. Assessment of Source

Atmospheric deposition is recognized as a major nonpoint source of pollution. Acid rain is the most well known form of atmospheric deposition, but there are other aspects of the problem that are equally damaging. Deposition occurs during all forms of precipitation and even occurs as dustfall on sunny days. Pollutants released to the air will eventually fall back to earth. The pollutants are deposited on the landscape and then carried to waterbodies during runoff events.

The Handbook of Nonpoint Pollution, by Vladimir Novotny and Gordon Chesters, categorizes the sources of atmospheric pollution as point source (industrial and power plant stacks), diffuse sources (urban areas, landfills, agricultural fields), and line

sources (highways). Generally, the magnitude of deposition is directly proportional to the distance from the source. For example, lead deposits from auto exhaust are almost all deposited within several hundred feet of the highway. However, the practice of building taller stacks has caused the effects of point sources to be spread through a broader area.

Precipitation causes gases, aerosols and large particles to be removed from the atmosphere and deposited on the surface. Pollutants contained in precipitation may include acidity, toxic materials, organic chemicals, phosphates and nitrogen compounds. Dry fallout is of significance only during times between precipitation events, but in some cases the overall loadings have been found to be on the same order of magnitude as wet fallout.*

b. Current Programs to Control Source

The problem of acid rain largely originates from pollutants emitted into the air when fossil fuel is burned. The primary pollutants are sulfur oxides which combine with water to form sulfuric acid, and nitrogen oxides which combine with water to form nitric acid. The oxidation reaction is aided by metallic catalysts such as iron and manganese oxides which are commonly present in the fly ash emitted during the burning process. Acid rain results in lower pH and higher levels of aluminum in surface waterbodies. The aluminum is leached from soil and sediments by low pH water. The higher aluminum levels cause fish to produce excess mucus which clogs their gills and causes their death.

The entire ecosystem can be affected by acid rain. The sensitivity to acidic conditions varies among different animals and plants. In the most severe cases mortality and reproductive failure among certain fish are experienced. Impacts may be in the form of reduced food supply or death of newly hatched fry, the stage most sensitive for fish species.

Acid rain has been listed as the primary source of impairment on 398 waterbodies within the Black, St. Lawrence, Lake Champlain, Upper Hudson and Mohawk basins. Recent information indicates that waterbodies within the Catskill Park and in higher elevations in southeastern New York are also affected by acid rain.

Atmospheric deposition has been shown to be a significant source of pollutants in urban areas as well. It contributes pollutants to many of the 70 segments on the PWP list that are impaired due to urban runoff. NURP studies indicate that urban runoff problems are probably more widespread than the PWP list

* Novotny, V. and G. Chesters, Handbook of Nonpoint Pollution, 1981, p. 137.

indicates. They also suggest that atmospheric deposition is a major pollutant source in urban areas.

There are several programs presently operating in New York which address atmospheric deposition. All operate at the state level. However, to achieve long-term success, stronger federal programs will be required, not only for acid rain but for other forms of atmospheric deposition as well.

The most direct control program to address acid rain is the Acid Deposition Control Program operated by the Division of Air in DEC. It is a regulatory program designed to reduce the state's contribution to acidic deposition. The program issues permits for discharges and requires the use of sulfur content conforming fuel.

The Division of Water has two programs which address acid precipitation. The Acid Rain program is a planning effort which monitors the water chemistry of four Adirondack lakes. The Clean Lakes program is a state and local program funded by the federal government. The program offers educational, planning, technical and financial assistance to correct problems in freshwater lakes. While acid precipitation is one of the sources addressed, it is not the primary focus of this program.

Another planning program involves a corporation in which DEC is a major participant. A comprehensive survey of the impact of acid rain on New York's surface waters was conducted by the Adirondack Lakes Survey Corporation between 1984 and 1987. This Not-for-Profit Corporation was established in 1983 under the sponsorship of DEC and the Empire State Electric Energy Research Corporation.

DEC's Division of Fish and Wildlife operates a lake liming program on selected lakes in the Adirondacks. This program employs direct government action and is considered a management tool to help restore and protect valuable resources. There are 32 waterbodies presently included in the program. Other waterbodies may be viable candidates, but the program cannot be considered as a solution to the problem for the entire state.

DEC has several programs which address atmospheric deposition by controlling substances released to the air. The Division of Air has regulatory control over point sources of air contamination in New York. The program, authorized under Title 3 of Section 19 of ECL, requires permits from all sources except for 25 types of contamination sources listed in the regulations. These 25 sources are exempt due to size or type of discharge.

Under this program, a permit to construct is needed before an air contamination source can be built. Information on the type, rate and quantity of emission, as well as plans, specifications and operational information about the source must be provided. The

Division of Air reviews the application to determine whether the operation of the source will prevent the attainment or maintenance of applicable ambient air quality standards. Part 212 of 6 NYCRR establishes the degree of air cleaning required for emissions. The degree of cleaning required varies based on the emission rate potential and the environmental rating of the pollutant.

A certification to operate an air contamination source is also required. A stack test report can be mandated to assure that the actual performance conforms with the emission requirements. Failure to properly operate or maintain air cleaning equipment can result in revocation of the certificate to operate.

The Division of Air also conducts routine air monitoring through its Ambient Air Monitoring System. The air monitoring system is the basic measure of the effectiveness of the state's air pollution control program. The system is designed to measure compliance with ambient air quality standards and provide long-term air quality trend data. The Bureau of Air Quality Surveillance prepares an annual report which provides data summaries of most air pollutants for which ambient air quality standards have been established. These include sulfur dioxide, carbon monoxide, nitrogen dioxide, ozone, total suspended particulates, inhalable particulates and lead.

The Air Monitoring Network includes several special segments. The Atmospheric Deposition Monitoring Network is a special network of 17 stations used to obtain information on acidic precipitation in New York. An Air Toxics Monitoring Network is also in the initial phase of deployment across the state. Stations exist in Staten Island and on the Niagara Frontier. Ultimately, the network will consist of 20 stations.

The Waste Management Institute at Cornell University conducts research programs related to solid waste management. One aspect of solid waste management being studied is combustion-based technology. Emission characteristics and the control of toxics from incinerators are among the items being researched.

Existing programs have begun to document the problem and explore control options. It will not be possible to control this source by New York State efforts alone. Federal programs are required to control the sulfur and nitrogen emissions which originate out of state.

c. Additional Program Needs

As stated above, a long-term solution to this problem will require Federal regulatory programs. New York has no control of sources outside the state and can only deal with the effects. However, documentation of the effects atmospheric deposition has

on waterbodies is needed to help convince federal officials that regulatory actions are needed.

Recommendations Using Existing Authority

1. Long-term monitoring and assessment of waters to document the impacts of atmospheric deposition is needed. Numerous models have been developed to demonstrate the impacts of this source but monitoring data is needed to determine the validity of the models.
2. Research and demonstration projects should be conducted to explore possible mitigation measures for waterbodies affected by acid rain. Projects should include documentation of the effectiveness of the measures employed.
3. Additional research on the impacts of atmospheric deposition on waterbodies in urban areas is needed.

Recommendations Which Will Require New Authority

4. Federal legislation which provides additional regulatory controls over precursors is required to control out-of-state sources.

4. Construction

a. Assessment of Source

Construction shares the characteristic with most other nonpoint sources of generating pollutants during runoff and wind events. It also is a transitional land use, disturbing the land surface and creating a vulnerability to erosion and the production of sediment for a period of time. This discussion will be limited to the immediate impacts of construction activities. The long-term effects on stormwater runoff by the building, road, parking lot, etc., constructed will be addressed in the section on urban runoff.

Soil erosion from sites disturbed by construction activities can have a serious impact on water quality. Studies have shown that rates of erosion from construction sites are among the highest of any source category. During transport, sediment can increase turbidity in waterbodies, affecting aquatic life through abrasion and reduced light penetration. Water supply uses can also be affected through increased treatment costs. As a result of sediment deposition, aquatic habitats can be blanketed, capacities of hydraulic structures decreased, and navigational uses affected.

The pollutants associated with the construction category include the soil particles and the substances attached to the individual particles. Nutrients and toxic substances attached to

sediments can become dissolved in the water column and enter the aquatic food chain, leading to problems other than those caused by the sediment. A nutrient source associated with construction may be over-fertilization in an attempt to establish grass on disturbed areas. Poor housekeeping and spills around construction sites can lead to toxics entering the water.

Construction is noted on the priority water problem list as a secondary source for five segments. From the pilot assessment surveys and USDA-SCS lists, construction is the primary source for three segments and a less significant source for 21 others. Streams and lakes affected are about equal in number. While the affected water bodies were distributed around the state, Albany and Rensselaer counties have higher proportionate numbers. This may result from the level of land development activity in those counties compared to other counties surveyed in the pilot assessment program.

b. Current Programs to Control Source

There are a number of existing programs which assist in the control of nonpoint source pollution from construction. Programs exist at all levels of government but the primary activities are at the state and local levels. Most of the programs use either the regulatory approach or technology transfer.

At the federal level, there are several programs which deal with construction. Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to issue dredge and fill permits for activities which affect navigable waters. A state water quality certification as specified in Section 401 is needed before the permit can be issued. The Water Quality Act of 1987 requires states to phase in a program to regulate stormwater discharges from certain size municipalities and from industrial activities. Construction is listed as one of the regulated industrial activities. EPA is developing regulations to implement this permit program. Based on the provisions of the law, construction projects are to be permitted by February 1991.

The Conservation Operations Program in USDA's Soil Conservation Service (SCS) assists landowners and other units of government through technical assistance. The Conservation Technical Assistance (CTA) program is delivered through local conservation districts. The SCS CTA program was authorized to control or prevent soil erosion and for the preservation of natural resources. Another technical assistance effort in which SCS has a significant role involves erosion and sediment control guidelines.

These guidelines were prepared by a committee of federal and state agencies and private organizations. SCS chaired the development committee. The guidelines contain a set of 38

standards and specifications for vegetative and structural management practices to control off-site sediment damage from construction activities. They were compiled into a handbook entitled, "New York Guidelines for Urban Erosion and Sediment Control". The Empire State Chapter of the Soil and Water Conservation Society published this handbook and is responsible for distribution. The book is distributed both directly through Society members and by county Soil and Water Conservation Districts.

In conjunction with distribution, many Districts have sponsored public training sessions to educate contractors, engineers, and planning board members on the use of the "Guide". As of March 1989, the SCS State Conservation Engineer had provided or scheduled training sessions in over 30 counties. In addition, SCS provided training to the Land Improvement Contractors Association and to the New York Planning Federation.

State programs in the Department of Environmental Conservation tend to be targeted at protecting specific habitats or sensitive lands. Freshwater Wetlands Protection, Stream Protection, Tidal Wetlands, and Wild and Scenic Rivers are all regulatory in nature and are limited in application to designated areas of concern. Permits are required for any construction activity which will affect one of the designated areas. Control measures such as silt barriers are required to prevent adverse impacts.

The SEQOR process requires environmental impact reviews on all construction projects that could have a significant effect on the environment. Where the proposal is determined to have significant impacts, mitigative measures are proposed in the environmental impact statement. There is an opportunity to address the long-term runoff impacts of a project through the SEQOR process, but that aspect will be addressed in the urban runoff section.

The Division of Water is preparing guidelines for Regional staff use in reviewing projects for erosion and sediment control. The guidance will be issued in 1990 as one of the Division's Technical and Operational Guidance (TOGS) memos. The TOGS will call for use of the Guidelines for Urban Erosion and Sediment Control published by the NY Soil and Water Conservation Society.

The Department of State and the Department of Transportation have programs which address construction. The Coastal Management Program in the Department of State controls pollution from construction activities as part of the waterfront revitalization programs. The Department of Transportation employs source controls in its construction contracts by requiring erosion and sediment controls. Since control requirements are part of the contracts, this program can be regarded as regulatory. The Adirondack Park Agency has several programs which regulate construction in the park.

The only local programs identified in the Assessment Report are one unique to the New York City Reservoir watersheds and one which operates in all counties outside of New York City. The City uses a regulatory approach to control construction runoff in its watersheds through SEQOR reviews. The other local programs identified involves technology transfer assistance provided to units of government and landowners by County Soil and Water Conservation Districts. A 1989 survey of areas of responsibility revealed that 54% of the districts are involved in the control of nonpoint source pollution from construction activities.

Although not enumerated in the Assessment Report, local land use regulation, primarily through site plan review, or through local erosion and sediment control ordinances, are other program means of addressing the nonpoint source aspects of construction. A survey conducted for the wellhead protection program indicated that a small percentage of communities across the state have sediment and erosion control programs. Most counties rely on the Soil and Water Conservation Districts to address the problem.

The effectiveness or degree of success of current programs is difficult to measure in terms of water quality improvement or protection for the same reasons cited above in the discussion of identifying waterbodies affected by construction activities. Data on "with-control" and "without-control" comparisons are not available.

In the terms of program coverage, the various elements which are meant to protect specific critical resource areas can generally deal with erosion from within the area of concern. Protection from sediment impacts from upstream areas are only partially covered in most critical resource programs since the area covered usually includes only a limited buffer or transitional area, not the entire tributary upstream area. The municipal and county programs that regulate land usage and require permits prior to land development offer the best opportunity for comprehensive control of construction impacts.

c. Additional Program Needs

The primary control options now used for construction activities are a combination of regulation and technology transfer. Continuing this approach with appropriate modification of existing programs and new initiatives is recommended. Additional educational efforts to increase public awareness of water quality issues relating to construction are also needed.

Recommendations Using Existing Authority

1. Programs to disseminate the information contained in the New York Urban Erosion and Sediment Control Guidelines

should be expanded. Soil and Water Conservation Districts who have not yet sponsored one of the SCS training sessions on the guidelines should be encouraged to do so. This technology transfer effort provides information to an important targeted audience. Other groups such as local building inspectors should be encouraged to participate in the training sessions.

2. A model erosion and sediment control ordinance should be developed. This could include best management practices (BMPs) and performance standards which can be used to determine whether the BMPs used are effective. It should also contain provisions for an application fee system to support the review. The actual ordinances should specify a lead agency for performing reviews. The lead agency might be the county soil and water conservation district, the local building inspector's office or some other agency. In developing the model ordinance, existing local laws should be reviewed and provisions which have proven to be effective should be incorporated into the model.
3. The Department should develop guidance on erosion and sediment control which could be used by interested parties on the review of development plans.
4. DEC should implement the program to regulate stormwater runoff from construction sites as required by ECL §17-0808. If final regulations permit, the review and approval for individual projects should be handled by municipalities. Control over municipalities would be exerted through the general permits issued for their stormwater systems.

Recommendations Which Will Require New Authority

5. Legislation to create a statewide erosion and sediment control program is needed. The legislation should require local or county governments to pass their own ordinance which contains all the provisions specified in the model ordinance.

The law could possibly include incentives/disincentives to local governments who pass an ordinance (similar to the flood insurance program where if a community does not regulate land use in the flood plain, then they are not eligible for flood insurance). Tying this to eligibility for any nonpoint source cost-sharing money which might be available or the state revolving loan fund could be explored.

There should be provisions in the law that if the local government does not pass their own ordinance, then the state government will administer the program. Again, this is similar to the system used for the flood insurance program. The law could also require an inspection of erosion and sediment control measures installed.

5. Contaminated Sediment

a. Assessment of Source

Fish consumption advisories and fishing bans frequently result from contaminated sediment. It is a problem in a number of major waterbodies across New York. The 1988 Priority Water Problem List report states that "at virtually any hydrological sink, lakes and the mouths of rivers to which toxics-bearing wastewater once discharged, toxic contaminated sediments remain."

Bioaccumulation of toxic substances through the food chain is the cause of impairments that result from this source. Fish flesh data collected by DEC's Division of Fish and Wildlife have led the NYS Department of Health to issue consumption advisories on almost 40 waterbodies. The advisories range from a complete ban on fishing to guidelines for frequency of consumption.

The pollutants associated with this source are a variety of toxic substances which accumulate in the sediment. Polychlorinated biphenyls (PCBs) are the most common contaminant. Other toxic chemicals, such as dioxin, DDT, mirex and mercury, are the contaminants in other segments affected by this source.

Contaminated sediment is listed as the primary or secondary source of impairment in 37 waterbodies included on the PWP list. Many major waterbodies are affected by this source including the Hudson River, the Buffalo River, the Niagara River, Lake Champlain and Lake Ontario. The PWP report states that it is unlikely that all the waterbodies impacted by contaminated sediment have been identified. It goes on to say that criteria do not exist upon which evaluations of the degree of toxicity or risk associated with contaminated sediment can be made.

b. Current Programs to Control Source

Most of the existing programs to address contaminated sediment that were identified in the Assessment Report are planning activities at the state level. There are at least two initiatives which are taking actions to address problems with contaminated sediments in specific waterbodies.

The Division of Water has a research/demonstration project underway for the dredging and encapsulation of PCB contaminated

sediment from the Hudson River. This project has two primary goals: (1) successful completion of the dredging project, (2) through the construction of a sediment containment facility, accommodate the removal and encapsulation of PCB contaminated materials from the river. This project is also exploring viable contaminant destruction technologies such as biodegradation and incineration. The other initiative is by the Division of Hazardous Waste Remediation. They are involved in a project dealing with the mercury contained in the bottom sediments of Onondaga Lake.

EPA's Great Lakes National Program Office is conducting a 5-year study and demonstration program on the best ways to remove toxic pollutants from bottom sediments. The purpose of the program is to develop guidance on dealing with contaminated sediment problems, not to clean up specific sites. The Buffalo River is one of five demonstration projects included in this program. The projects include an assessment of the waterbody and sediments, a study of potential remedial technologies, and an evaluation of the environmental and economical effectiveness of the project.

The Division of Water includes the analysis of sediment in many of its water quality monitoring programs. One of the objectives of the Rotating Intensive Basin Studies (RIBS) program is to expand knowledge of water quality cause and effect relationships through actions such as assessing the bioavailability of in-place toxics. The studies include water column, sediment, macroinvertebrate and fish monitoring. Sediment samples are analyzed for heavy metals, organochlorine pesticides and PCBs. The Intensive Stream Survey program conducts detailed studies on selected waterbodies to locate sources and model pollutant fate.

The effect that contaminated sediment has on fish and wildlife is the most common cause of impairment in this category. The Division of Fish and Wildlife collects contaminant data on various species. This data is summarized in periodic reports entitled "Toxic Substances in Fish and Wildlife."

Several other programs are listed which address this source primarily in a planning fashion. The Great Lakes coordination effort will assess existing sources of pollution and develop Remedial Action Plans to address these sources. The National Estuary Programs for Long Island Sound and for the New York - New Jersey Harbor both are designed to study the effects of various sources including contaminated sediment. The programs will also deal with remedial actions through education, research and technology transfer efforts.

In the regulatory area, the State Pollutant Discharge Elimination System, administered by the Division of Water, regulates the discharge of toxics from point sources. This system should greatly reduce the chance of further contamination of

sediment from point sources. The industrial pretreatment program also helps limit the discharge of toxics.

The NYSDOS Coastal Management Program is a multifaceted program with regulatory, educational and planning aspects. Local government's waterfront revitalization programs can be used to address contaminated sediment problems.

The 1988 Priority Water Problem List report identifies three concerns regarding programs to control contaminated sediment. The first is that the location, extent and impact of problems caused by this source has probably not been adequately determined. The second concern is criteria do not exist to evaluate the degree of toxicity of sediment. Finally no practical means for management, treatment and removal of the sediment has been demonstrated. Consumption advisories and fishing bans remain the only management alternatives available to address this source.

c. Additional Program Needs

Continuation of present programs to determine the extent of the water quality problems caused by this source is recommended. However, until control technologies are available to address existing contaminated sediments, little can be done to correct existing problems. Programs should continue to prevent further contamination of sediments and criteria should be established on a nationwide basis as to when sediment contamination is a problem.

Recommendations Using Existing Authority

1. DEC should encourage EPA to develop criteria for evaluating the toxicity and risk associated with contaminated sediment to assure nationwide uniformity.
2. DEC should encourage federal research on the impacts of the removal of contaminated sediment including the alternative of in-place mitigation measures.
3. The possibility of having more waterbodies that have contaminated sediments designated as state Superfund sites should be explored. This would then provide a funding mechanism for remediation of these problems.
4. A technology transfer effort is needed in the form of an international conference on all aspects of the contaminated sediment problem.

Recommendations Which Will Require New Authority

5. Banning certain toxic substances and the restriction of discharges of other toxics are options which may be

considered. While the SPDES program provides the authority to control point source discharges, it is more difficult to regulate discharges from nonpoint sources. Bans or use restrictions might be the most effective means of control in this case.

6. The creation of a new funding mechanism, similar to the Superfund but dedicated exclusively to the remediation of contaminated sediment problems, should be investigated. This concept has been discussed in the past and the concept has been called an Aquafund. All cleanups would be preceded by detailed investigations. Parties responsible for the contamination would be required to pay their share of cleanup costs.

6. Diffuse Urban Runoff

a. Assessment of Source

Stormwater runoff from urban and suburban areas poses a serious threat to the water resources of New York State. In fact, there is evidence to indicate that developed area runoff may be as harmful to water quality as municipal or industrial waste discharges in some areas. The developed area runoff problem is not entirely limited to water quality. Urbanization also has a profound influence upon the hydrologic characteristics of watersheds which may lead to problems ranging from flooding to reduction in stream base flow during periods of dry weather.

There are a number of sources which make up the broad category of urban runoff. Some of these are considered point sources while others are nonpoint sources. Urban runoff often is a combination of the two.

One way to categorize sources is that runoff is considered a nonpoint source until it gets into a collection system and then it becomes a point source. Another method to categorize sources is by how the source is addressed. A source such as storm sewers or combined sewer overflows (CSOs) which can be addressed through end-of-pipe controls such as permits are considered point sources. Sources from which runoff flows directly into a waterbody and is addressed through the application of BMPs are considered nonpoint sources.

In reality, it is not feasible to entirely separate point sources from nonpoint sources in regard to urban runoff. Even when the runoff eventually reaches a collection system, and so could be considered a point source, the best treatment method will frequently be through the application of BMPs which abate the runoff and the pollutants it contains before it reaches a collection system.

Rivers, streams, lakes, estuaries and coastal embayments can all be affected by pollutants that are commonly found in urban runoff. Pollutants vary in size, solubility and toxicity. Among the significant pollutants found in an urban setting are combustion products (such as nitrogen oxides and sulfides), deicing compounds, heavy metals, pathogens, roadway construction asphalts and vehicular hydrocarbons and hydraulic fluids. These pollutants accumulate rapidly on impervious surfaces and are easily washed off during runoff events. Atmospheric deposition is a major source of pollutants in an urban area.

No single factor is responsible for the progressive degradation of urban stream ecosystems. Rather, it probably is the cumulative effect of many individual factors such as sedimentation, scouring, increased flooding, lower summer flows, higher water temperatures, rechannelization and pollution.

Urbanization often will increase the peak flows in streams and reduce the time it takes for the peak to occur. This will tend to increase flooding and result in scouring and sedimentation. Urban runoff can also alter the natural stream temperature regime. Factors which contribute to this increase in temperature include runoff passing over the heated urban landscape, fewer trees present to shade streams, and runoff stored in shallow ponds is heated between storms, then released in a rapid pulse. The large percentage of impervious area associated with urbanization reduces infiltration, which can affect groundwater recharge and base flows.

Stormwater runoff from urban areas can adversely impact the fisheries, aesthetics and recreational use of lakes. Lakes that serve as a water supply for municipal and domestic consumption can also be affected by urban stormwater runoff through increased treatment costs. Of particular concern are nutrients, toxic materials and organic substances such as pesticides, heavy metals, pathogenic organisms, oxygen demanding substances and sediment which are picked up in urban stormwater and transported directly to lakes or streams flow into lakes. Marine waters are affected by toxic pollutants and pathogenic organisms, resulting in the closure of both shellfish harvest areas and beaches.

The Nonpoint Source Assessment Report identifies several locations in the state impacted by urban stormwater runoff. Of the 70 segments identified on the PWP list as being impaired by urban runoff, 57 are in the Atlantic - Long Island Sound Basin. Many of the segments are bays in the heavily developed Sound. Runoff carrying coliform bacteria is reported as the primary cause of closures of numerous shellfish beds in Suffolk County.

The three NURP studies undertaken in New York State suggest that urban runoff problems are more widespread than the PWP list indicates. These studies demonstrate that stormwater runoff from urban areas is responsible for significant pollutant loading from

developing (and developed) areas in the state. Vast expanses of impervious surfaces in urbanizing areas have resulted in increased runoff, increased water temperatures and lower base flows. These factors have combined to degrade fisheries habitat in many of the state's urban waterbodies.

b. Current Programs to Control Source

There are a number of existing programs which address urban runoff. Some of the programs deal with the point source aspects of urban runoff while others are concerned strictly with the nonpoint source aspects.

Combined sewer overflows (CSOs) are permitted through the State Pollutant Discharge Elimination System (SPDES) in conjunction with municipal permits. There are 99 publicly owned treatment works with CSOs in New York. The 1988 305(b) Report, prepared by the Division of Water's Bureau of Monitoring and Assessment, contains the following description of CSOs.

"Most of the larger cities in New York and some of the smaller cities have combined sewer systems that collect sanitary sewage and stormwater in the same system of pipes. The treatment facilities and pumping stations that are part of these systems are usually designed to accommodate a certain maximum flow, which is normally two to three times the average dry weather flow. Therefore, during rainstorms and snow melts when that flow is exceeded in the system, there will be untreated discharges (overflows) of a mixture of sanitary sewage and stormwater. This combined sewage which is not treated, contains bacteria, suspended solids, etc., and may also contain some untreated or pretreated industrial wastes. These discharges can and do have a severe impact on water quality, particularly near large urbanized areas such as New York City."

Storm sewers are a separate system for collecting or conveying stormwater runoff. The discharges from these collection systems are not presently regulated under the SPDES program. However, the Water Quality Act of 1987 requires states to phase in a program to regulate municipal storm sewers. Chapter 360 of New York State Laws of 1988 gives DEC the authority to regulate stormwater discharges as specified in the federal law. EPA is required to issue regulations by October 1, 1992 which establish requirements for state stormwater management programs. However, the larger and more significant storm sewer discharges will come under regulatory control sooner.

Permits will be required by February, 1991 for discharges from municipal storm sewers serving areas with a population of 250,000 or more. For areas with a population of between 100,000 and 250,000, storm sewer discharges must be permitted by February, 1993. The law allows states to issue permits on a systemwide basis rather than permitting each outfall. Stormwater discharges associated with industrial activity or any stormwater discharge that contributes to a violation of water quality standards can also be regulated prior to 1992.

In December, 1988, EPA issued draft regulations to implement the stormwater program. While the final form of this program is not known at this time, it will likely emphasize control of urban runoff through the implementation of BMPs.

For several years, DEC has been regulating certain stormwater runoff through the aspect of the SPDES program which requires the imposition of BMPs to control toxics in stormwater at industrial sites. When SPDES permits for industrial facilities are renewed, monitoring of stormwater discharges are required when there is reason to suspect that toxics from "industrial activities" are present. If toxics are present in the stormwater, BMPs such as control of runoff from roofs and following regulations for storage of hazardous chemicals are required to address the problems.

There are several state programs that provide an opportunity to address the effects of stormwater runoff from developing areas. These permit programs regulate development at the time of construction. The permit review process should include an assessment of the long-term effects on runoff which will result from the proposed development. Measures to prevent stormwater runoff problems should be incorporated in the design.

The program in this area with the widest scope is the State Environmental Quality Review (SEQR) process. All possible impacts of any proposed physical alteration or development must be considered in the review process. When the proposed action will have a significant effect on the environment, an environmental impact statement is required. The review agency can then require measures to control the impacts before approving a project.

Other programs are targeted at protecting specific habitats or sensitive lands. Freshwater Wetlands Protection, Stream Protection, Tidal Wetlands, and Wild and Scenic Rivers each apply to a specific area. Permits are required for construction activities which will affect one of the designated areas. The review process can consider the long-term effects of the construction as well as the short-term impacts. Another program that targets a specific area is the Flood Plain Management Permits program. It regulates construction in flood prone areas. Communities that have adopted acceptable flood plain management regulations administer their own programs. DEC administers the program in other communities.

Several existing state programs address urban runoff through planning efforts. These programs are designed to determine the effects of urban runoff in a specific area and then make control recommendations. Examples of these are the Great Lakes Coordination Programs (including the RAPs and the toxic management plans for Lake Ontario and the Niagara River) and the National

Estuary Programs for the New York - New Jersey Harbor and Long Island Sound.

Two DEC programs deal with the effects of urban runoff. The Shellfish Land Certification program is a regulatory program which assesses water quality in the tidal waters of New York's marine and coastal district. The program prohibits harvesting shellfish in areas that do not meet established criteria. The Clean Lakes program uses federal monies to clean up lakes affected by sources including urban runoff. The program is administered by the Division of Water.

The Division of Water has several other stormwater initiatives underway. A manual on stormwater management planning is being prepared to introduce the concept to local officials, planning board members and developers. This manual will provide basic information on assessing the quantity and quality of stormwater runoff and on stormwater management practices. The Division has nearly completed guidelines for controlling stormwater runoff from subdivisions and other developments. These guidelines will be issued in the form of a Technical and Operational Guidance Series (TOGS) memo. A TOGS memo which provides guidance on erosion and sediment control is also being prepared. This was discussed in the section on construction.

Other state programs identified which address this source are the Coastal Management Program of the Department of State and environmental initiatives undertaken by the Department of Transportation. The Coastal Management Program reviews local waterfront revitalization programs and requires that nonpoint source problems are addressed through appropriate management practices. The Department of Transportation's routine maintenance activities such as street sweeping and catch basin cleaning reduce the pollutant load available during runoff events. DOT also has used recharge basins on Long Island to handle highway runoff.

There is one regional program in the state which has the authority to address urban runoff. The Lake George Park Commission received authority in 1986 to implement a stormwater management program in the Lake George Basin. This program has a regulatory component to ensure that the quantity of stormwater runoff after development does not exceed pre-development conditions. It also has a component which seeks to control the quantity and quality of runoff from existing areas of development in the lake basin. Rules and regulations for program implementation under the regulatory phase currently are being developed. An initial study proposal has been prepared to evaluate the cost-effectiveness of various options for controlling stormwater runoff from developed areas of the Lake George Basin.

Some local governments have programs that are intended to reduce the pollutants coming from urban areas. Regular street

sweeping is done in some cities. However, many studies, including the Nationwide Urban Runoff Program (NURP), have demonstrated that street sweeping is generally ineffective as a technique for improving the quality of urban runoff. Another program used in many localities is an animal waste control ordinance requiring pet owners to pick up and properly dispose of pet wastes.

Several programs on the county and local level have been identified that use a regulatory approach to control the effects of stormwater runoff from new development. These programs all involve the review of stormwater management plans to assure that certain design storms (ex. 2-year, 25-year, 100-year 24-hour storm) can be controlled.

County Soil Water Conservation Districts are becoming involved in this review in many counties. For example, the Westchester County SWCD is reviewing subdivision plans and other development projects for many of the municipalities in the county. These reviews are primarily limited to ensuring that the rate of runoff after development does not exceed pre-development conditions. Stormwater detention facilities in Westchester County are designed for 2-year, 10-year, 50-year and 100-year storms. Under the leadership of the SWCD, county and local officials are moving to create a county stormwater management (regulatory) agency.

County Commissioners of Public Works are required by Real Property law to review drainage plans for subdivision approval. In many counties, designs frequently involve removing surface water from a developed site as quickly as possible irrespective of the off-site impacts. The lack of proper stormwater management guidance and facilities design criteria for controlling both the quantity and quality of runoff may have contributed to this method of design.

One notable exception to this is in Nassau County where over 600 recharge basins have been constructed. Recharge basins in Nassau County were initially considered to be the most cost-effective method of disposing of stormwater from a development site. In more recent years, recharge basins have been routinely required in subdivisions not only for controlling runoff but also for the aquifer recharge benefits they provide. There is general consensus among planning and water quality officials on Long Island that recharge basins do not adversely impact groundwater quality.

Many municipalities in the state have adopted subdivision regulations that have provisions for reviewing drainage plans. However, there is a lack of consistency among municipalities in their review of these plans. Some municipalities in heavily developed areas require stormwater management facilities to be designed based on specific storms. No municipalities in the state have been identified that have a fully integrated stormwater management program requiring control of the quantity as well as the

quality of stormwater runoff to achieve flood control and water quality protection objectives.

Control of diffuse urban runoff in the state is largely a local prerogative. There is no clearly defined statewide stormwater management program. For this reason, there is a lack of consistency in purpose, stormwater facility design requirements and results among communities involved in controlling runoff. Most locally administered stormwater programs have a "drainage" bias. The primary concern is ensuring that surface runoff is quickly removed from a developed site. While some programs do include provisions that runoff should not exceed predevelopment conditions, few programs include water quality protection as an objective.

Another problem is that most existing programs consider only the effects of new development. There are very few initiatives which address problems caused by runoff from existing development.

c. Additional Program Needs

Diffuse urban runoff is recognized as a significant problem in New York State. While the majority of the segments impaired by urban runoff that have been identified are in the Atlantic-Long Island Sound Basin, evidence such as NURP studies indicates that this is likely to be a problem in most of the heavily developed areas of the state.

State programs which deal with urban runoff have limited geographic coverage. There are only a few counties in the state with existing programs that are effective in addressing this source. These county programs deal with new development where runoff controls are incorporated in the design through measures such as zoning, increased perviousness and optimal design of conveyance systems. There is a need for statewide standards to assure consistency across the state. In addition, programs which deal with runoff from existing urban areas are needed.

Recommendations Using Existing Authority

1. The Division of Water should complete its guidance manual on stormwater management planning. This will provide guidelines for local officials to consider in their review of development proposals.
2. Educational efforts are needed to make local officials (especially planning boards) aware of the opportunities which exist to control runoff from new development. Land use planning is particularly valuable in addressing this source of nonpoint source pollution. Local zoning can be used to protect critical areas and control the extent of impervious surfaces (roofs, roads, parking lots, etc.). The effect of storm water runoff from a proposed

development project should be considered during the SEQR process.

3. DEC should prepare model stormwater control ordinances which call for local implementation of standards. The ordinances should emphasize the importance of handling runoff before it reaches storm sewers.
4. DEC should work with municipalities to minimize the effects of stormwater runoff through the imposition of BMPs wherever appropriate. This may be done through the SPDES permits to be issued for storm water discharges as required by the Water Quality Act of 1987.
5. Research and demonstration projects to study treatment techniques, such as the use of artificial wetlands to remove pollutants from urban runoff, should be encouraged.
6. Technology transfer efforts are needed to make local officials aware of the importance of maintaining stormwater control facilities. Actions such as cleaning catch basins and periodic removal of sediment from recharge basins are needed to assure that facilities will continue to function properly.
7. DEC should review federally funded projects to insure that appropriate measures are undertaken to prevent or mitigate adverse effects from nonpoint source pollution.

7. Hydrologic/Habitat Modification

a. Assessment of Source

This category includes a variety of activities which change the nature of a stream corridor or a wetland area. Changes to the bed and banks of a stream, modification to flow patterns of streams and dredging/filling of wetlands are considered here. Sometimes the problems experienced in the stream or wetland can be the result of changing land use patterns within the watershed.

The water quality problems in streams associated with this category deal primarily with the fishery habitat. Fish survival can be affected through changes to the habitat and through actions which damage the spawning environment. There can also be an impact on drinking water supplies. Increased treatment costs and reduced volume of reservoirs are among the problems experienced.

Modifications to wetland areas can affect the entire ecosystem. Dredging or filling a wetland can result in habitat loss and the loss of buffering capacities which the wetlands provide. These problems have been observed in numerous locations

in the coastal district where the loss of wetlands has impacted shellfish through bed closures and possible stock reductions.

Sediment and heat are the primary pollutants resulting from hydrologic modification. Sediment can increase turbidity reducing light penetration which may impact fish as well as the aquatic habitat having an effect on fishery reproduction. Increased temperatures may cause the elimination of coldwater fish from the stream. Fluctuating water levels in reservoirs and reduced flow in segments downstream of dams can also be effects from this source.

There are a variety of sources included in this category. Streambank modification and destabilization is one common source. Removal of riparian vegetation is a subcategory of this source. The modification of the stream can result from agricultural activities, construction or development. Sedimentation resulting from streambank erosion and thermal stress problems occur as a result of these actions.

Urban development can increase runoff which may result in increases in the magnitude and frequency of downstream flooding. Increased flow can cause widening and destabilization of stream channels. The flooding is sometimes addressed by channelization projects. While these correct the flooding problems during times of high flow, they can result in thermal stress during normal flow periods in the summer.

Dredging frequently causes sediment problems. It can also affect the habitat for fish and aquatic vegetation.

Surface impoundments are another source included in this category. There can be detrimental effects both upstream and downstream of the dam. The water level fluctuations within the impoundment can disturb fish habitat and spawning. The change in downstream flow conditions can also affect fish survival. Limited releases can cause the stream temperature to rise. In some cases, stream segments may be completely dewatered during the operation of a hydroelectric power plant.

There are 28 segments on the PWP list where hydrologic/habitat modification is considered a source. The largest number of segments are affected by the operations of a dam. Water level fluctuations within the reservoir and dewatered stream segments downstream of the dam are frequent problem causes. Removal of riparian vegetation, streambank destabilization and dredging are considered problems on several segments each.

Discussions during the NPS Pilot Assessment meetings indicate that streambank erosion is a widespread problem. Removal of riparian vegetation is another problem that appears to be more common than the documented numbers would indicate.

Certain types of problems have been identified in some areas but not mentioned in other parts of the state that are likely to have the same problems. Further educational efforts are needed to make people aware of the water quality problems that can occur as a result of this source category.

b. Current Programs to Control Source

Programs have been identified at the federal, state and local levels which address this source. Existing programs employ a range of approaches. Federal programs use financial incentives and direct government actions. State programs primarily employ a regulatory approach to address this category. Technology transfer is used on both the state and local levels.

Federal programs identified are operated by USDA. The Soil Conservation Service has the Emergency Watershed Protection program and the Watershed Protection and Flood Prevention program (PL-566). The Emergency Watershed Program is remedial in nature and is designed to alleviate imminent hazard to life and property from floods and products of erosion. The program uses technology transfer and financial incentives to aid local sponsors in correcting problems caused by natural disasters. The PL-566 program authorizes SCS to cooperate with state and local agencies in planning and constructing small watershed improvements. Financial incentives are also used in this program.

Provisions in the federal Food Security Act use financial "disincentives" to improve water quality. If good conservation practices are not followed, the farm will become ineligible for farm program benefits. The programs which affect this source most directly are the Conservation Reserve Program (CRP) and the Swampbuster program. The CRP uses financial incentives to encourage farmers to take actions which will prevent erosion and filter runoff. Practices include the establishment of vegetative buffer strips on streambanks. The Swampbuster program encourages the preservation of wetlands that might otherwise be drained and tilled for crop production.

The Agricultural Conservation Program (ACP), administered by USDA's Agricultural Stabilization and Conservation Services, uses financial incentives to address this source. Cost-sharing assistance is available for implementing management practices such as streambank stabilization and tree planting.

The Corps of Engineers administers a program of issuing permits for the discharge of dredged or fill material into navigable waters. Section 404 of the Clean Water Act authorizes this program. The state must review each permit and provide a water quality certification under Section 401 before the Corps can issue a permit.

There are a number of state programs in this area. Several programs use a regulatory approach while others address this source through planning or direct government actions.

DEC administers several regulatory programs which address this source category. The Tidal Wetlands program applies further controls to dredging operations. The Stream Protection Permit program and the Wild and Scenic Rivers program regulate any activities that would disturb streambeds or banks on streams classified "C(T)" or higher. The Adirondack Park Agency assumes responsibility for these permit programs in the Adirondack Park. There is a Memorandum of Understanding between DEC and DOT which outlines procedures to be followed by DOT to protect streams. This MOU exists since state agencies are exempt from stream protection permit requirements. Local governments that have a memorandum of understanding with DEC are also exempt from stream protection permits. Local governments frequently mine sand and gravel from streams.

Another DEC regulatory program is the Water Supply Permit program. When surface water is involved, these permits address the issue of hydrologic modification. Issues of flow regulation and modification are considered during the review. A special case under flow regulation is the Reservoir Releases program. It requires cold water releases from New York City water supply reservoirs to protect and enhance the recreational use of downstream waters.

Two DEC programs have been identified that employ direct government actions. The Flood Control Projects program constructs, operates and maintains flood control structures. Funding comes from a combination of federal, state and local sources. The Division of Fish and Wildlife operates the Stream Habitat Improvement program which constructs structures and/or vegetative plantings along streams with public fishing easements. This program also encourages (through technology transfer and financial incentives) local organizations such as sportsmen's clubs to undertake habitat improvement activities.

The Stream Corridor Management program in the Division of Water encourages the protection and maintenance of streams and their corridors. The program operates entirely through technology transfer. It promotes the management concepts to Soil and Water Conservation Districts, Environmental Management Councils and other local groups.

The NYSDOS regulates dredging and filling activities within coastal areas through its Coastal Management program. The program is guided by 44 policies which cover the use of coastal waters and associated land resources through the maintenance and preservation of fish and wildlife habitats. The DEC Flood Plain Management

program regulates activities within flood prone areas across the state. The program is administered locally where adequate regulations are in place. In other cases, DEC operates the program.

In most counties, Soil and Water Conservation Districts are the primary local agency which addresses hydrologic modification. They use planning, technology transfer and direct action approaches toward control of this category.

Existing programs deal with the problems associated with this source effectively within their jurisdictional limits. However, permit programs cover only certain areas and in some programs, problem causes such as agricultural activities are exempt from regulation. A more complete assessment of problems caused by this category is needed. Upon its completion a determination of the need to expand present programs or develop new ones can be made.

c. Additional Program Needs

Existing programs to control this source have been effective in their limited areas of application. However, limited jurisdiction, activities which are exempt from the programs and lack of awareness of the source have hampered the control.

Recommendations Using Existing Authority

1. The principles advocated in the Stream Corridor Management program need to be more widely disseminated across the state. Training sessions should be held for soil and water conservation districts as well as Resource Conservation and Development Councils (which presently include 32 upstate counties) to encourage the application of these principles.

Included in this effort should be educational activities to increase public awareness of the benefits of stream corridor management. Stream conservation can have numerous benefits to a community. The programs should encourage the creation of community stream protection programs to implement management practices. The benefits of wetlands as nonpoint source filters should also be highlighted in educational programs.

2. Promotion of the existing cost-sharing programs (such as the Conservation Reserve Program through ASCS) for treatments such as vegetative buffer strips is needed.
3. The Memorandums of Understanding which are required for local governments under the provisions of the Stream Protection Permit program should include requirements for utilizing best management practices to minimize stream

disturbance. (This recommendation also applies to the resource extraction category.)

4. The Department should establish minimum instream flow criteria.

Recommendations Which Will Require New Authority

5. Regulatory programs which control runoff to prevent damage to streams should be developed in conjunction with the stormwater management program. There should be requirements for the attenuation of peak runoff from newly developed areas.

8. Land Disposal

a. Assessment of Source

When properly designed and installed, land disposal facilities should not cause water quality problems. Numerous facilities do not meet accepted standards and pollutants leached from these facilities have resulted in impaired waters. The primary sources which are included in this category are landfills, hazardous waste sites, and on-site wastewater systems.

Land disposal of solid wastes and wastewater can result in the contamination of groundwater and may eventually affect surface waters. All fresh groundwater in the state is classified as a potable water supply. Land disposal most commonly affects this use. Pollutants from land disposal activities can also reach surface waterbodies. When this occurs, the pollutants can affect fish propagation and survival. The pollutants can also result in restrictions on shellfishing in marine waters as well as on contact and non-contact recreation in both marine and fresh waters.

The pollutants associated with land disposal vary among the different sources included in this category. The leachate from landfills and hazardous waste sites may contain a number of toxic substances which can affect surface water and groundwater. Discharge from on-site wastewater systems contains pathogens and nutrients, and nitrates. Most pollutants are removed by the soil in a system which is functioning properly. However, if the system is not properly designed, installed or operated, there may be adverse affects on water quality. In heavily developed areas, there may be water quality impacts even when systems are properly designed.

Numerous water quality problems across the state resulting from land disposal activities have been listed in the Assessment Report. Landfills (both municipal as well as active and inactive hazardous waste sites) are a documented problem for both surface and groundwater.

On-site systems have been only documented as a problems for surface waterbodies, but they are also considered to be a threat for groundwater. For streams, the problems involve the lack of systems or failing systems within streamside hamlets. For lakes, dwellings along the shoreline can contribute excess nutrients which cause weed and algal problems. The most common threat to groundwater from on-site systems is degradation of individual water supplies by bacteria and/or nitrates. There is also a concern that new high density development or development with inadequate systems will result in contamination of surface or groundwater.

b. Current Programs to Control Source

Existing programs to control pollution from this source operate primarily at the state level. County and local programs that address certain sources also exist. The existing programs employ regulatory and planning approaches as their primary tools. Technology transfer is used in several programs, while the Superfund program relies on direct government actions.

Programs to regulate landfills and hazardous waste sites are operated by DEC under Federal and State laws. The Federal Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984, and Article 27 of the New York State Environmental Conservation Law provide the basic authority for the regulation and management of solid and hazardous wastes.

RCRA applies to municipal solid waste as well as hazardous waste. However, USEPA has concentrated on the control of hazardous materials. Under RCRA, EPA has identified and listed hazardous wastes; established standards applicable to generators and transporters of hazardous waste; established minimum requirements for permitting hazardous waste treatment, storage and disposal facilities; and developed "cradle-to-grave" tracking of hazardous waste through a manifest system which tracks wastes from the time they are generated until they reach a final disposal site. DEC administers this program in New York.

The Superfund program handles the remediation of inactive hazardous waste sites. This is done primarily through a regulatory approach. It also involves direct government actions where the responsible party cannot be found or is uncooperative.

The Municipal Waste Permit program in DEC regulates the construction and operation of municipal landfills. The program includes the inspection of facilities and the initiation of enforcement actions against facilities that are not in compliance with regulations. Training courses are provided for municipal landfill operators under this program.

The authority for control of on-site wastewater disposal systems is based on New York's Environmental Conservation Law (ECL) and Public Health Law (PHL). Both ECL and PHL provide for the review of wastewater systems for realty subdivisions of where lot size is less than 5 acres and there are 5 or more parcels subdivided within a 3-year period. Approval of plans for these subdivisions by DEC, DOH or the county health department is required.

There is no state level review of individual systems for homes which are not part of a subdivision. The DOH has established standards for individual systems. These standards have been incorporated into the state's uniform building code. Compliance with requirements for design and installation of individual systems is accomplished through review by local code enforcement officers. Some counties have adopted a sanitary code which may establish more stringent standards. Individual systems are reviewed and approved by county health departments in these cases. Soil and Water Conservation Districts play a role in the review in some counties that do not have health departments.

Programs for the control of municipal landfills and hazardous waste sites appear to have adequate authority. Staffing limitations are the primary problem in some of the program activities.

The control of on-site systems is somewhat uneven. Since counties and local governments have the primary responsibility for enforcement, there is a wide range in the way the program is operated across the state. Some counties have very active programs and very stringent requirements, while in other areas programs are non-existent except for response to nuisance complaints resulting from faulty sewage disposal systems.

c. Additional Program Needs

Water quality problems caused by landfills and hazardous wastes exist but they are being addressed by existing programs. No recommendations for modifying these programs will be included in this report.

Problems from on-site systems can be considered in two categories. The first relates to new development and the threats to water quality that it poses. The second category is for existing development which is presently causing a water quality problem. The control options recommended will be different for the two categories.

In the case of new development, regulatory, technology transfer and planning programs are recommended. For existing development, regulatory programs, financial incentives and demonstration projects would be desirable. The first two

recommendations below deal primarily with addressing new development. The remaining recommendations relate more to problems caused by existing development.

Recommendations Using Existing Authority

1. Model sanitary code requirements for individual on-site wastewater disposal systems should be developed. Counties whose codes do not meet or exceed the requirements of the provisions should be encouraged to adopt such.
2. Technical guidelines should be prepared to assist local governments in effectively using local zoning as well as subdivision and site plan review authority to minimize on-site wastewater disposal impacts. The use of zoning is particularly appropriate in dealing with this source category. Soil and water table information should be considered when establishing maximum housing density for a particular area. Watershed rules and regulations might be used to ban on-site systems in certain critical areas.
3. Existing enforcement authority should be used to require corrective actions by persons causing water quality problems due to inadequate on-site wastewater systems. Priorities should be established based on the PWP list.
4. Financial incentive programs, such as the revolving loan program, are needed to assist communities in funding collection and treatment systems.
5. A technology transfer effort to identify potential methods of financing projects is needed. Alternatives such as creation of wastewater management districts and implementation of the self-help program would be included. This information should then be made available to communities with water quality problems caused by failing on-site systems.
6. Demonstration projects should be used to illustrate new methods for solving the problem caused by failing on-site systems. Alternatives to conventional collection systems and treatment plants should be studied. Projects using methods such as cluster systems that collect sewage from small-lot residences and distribute it to nearby sites with suitable soil should be encouraged.
7. Educational efforts are needed to make the public aware of the major impact of improper disposal of household hazardous waters (used oil, batteries, paint, solvents, etc.). The programs should inform the public that improper disposal can result in degradation of groundwater.

9. Leaks, Spills and Accidents

a. Assessment of Source

Leaks and spills of petroleum products and other hazardous materials are a significant problem in New York. Subsurface leaks have the greatest potential to contaminate groundwater while surface spills can cause either groundwater or surface water problems.

Most of the problems that have been identified involve contaminated groundwater. All fresh groundwater in the state is classified as a source of drinking water. The toxic materials that are leaked and spilled can affect this use. Spills to surface water can impair designated uses of these waterbodies.

Many of the pollutants in this category are hydrocarbons (organics). In the case of petroleum contamination, the dissolved constituents such as benzene, toluene and xylene (BTX) are the primary pollutants. Chlorinated solvents, such as TCE, are the most important of the hazardous materials due to their mobility.

Spills and leaks of petroleum products and of chlorinated solvents are significant sources of groundwater contamination. The Bureau of Spill Response maintains a data management system on all reported petroleum and hazardous material spills. An indication of the magnitude of the problem is the number of spills that occur each year. The Assessment Report contains information from the Spill Response data base on the number of active spills and leaks during the Fiscal Year 1987-88. Over 9,000 petroleum spills and more than 600 hazardous material spills were reported. The majority of the spills were either under land surface or to the ground. Only 10% of the spills drained directly to surface water.

The effect that a particular spill or leak has depends on its proximity to wells or to a surface waterbody. The type of pollutant, and the geology of an area. Petroleum products most often cause contamination of shallower wells while the more mobile chlorinated solvents can cause problems in deeper municipal water supply wells. The most important problem areas are in aquifer recharge areas where high storage tank density and high dependency on shallower groundwater coincide.

b. Current Programs to Control Source

Control of this source is performed predominantly at the state level. There are federal laws which apply but the programs have been delegated to the state. Local programs also exist for spill response and bulk storage in some areas of the state.

The Petroleum Bulk Storage (PBS) program and the Hazardous Chemical Bulk Storage (CBS) program are both operated by DEC's Division of Water. They are primarily regulatory programs which require facility owners to register and test tanks. Construction codes for the installation of new tanks are another regulatory aspect of these programs. The programs also have planning aspects since they are providing an inventory of sources. PBS has been delegated to county governments in four counties. It is

anticipated that CBS will eventually also be delegated to some counties.

The Spill Response Program uses the regulatory approach and direct government actions. The responsible party is required to clean up petroleum and hazardous material spills. If the spiller is uncooperative or unknown, then the state hires a standby contractor to perform the cleanup. Legal action against the spiller is taken to recoup the cost of the cleanup.

Several other programs identified in the Assessment Report also address this source. DEC's groundwater program and the Department of Health's Public Water Supply program both involve planning to identify potential contamination sources. The water supply program can then use regulatory controls such as watershed rules and regulations to address these problems. Another program which concerns this source is the specialty course offered at the College of Environmental Science and Forestry. This educational program offers courses in management of oil and gas brines and in hazardous waste handling and emergency response.

These programs provide the basis for control of water quality problems caused by spills and leaks. The state has regulatory control over the primary sources through the PBS and CBS programs. The inspection and testing aspects of these programs identify leaks which must be remediated. The Spill Response program addresses spills and leaks as they are discovered. Watershed rules and regulations can be used to control the sources within critical watersheds.

c. Additional Program Needs

Spills, leaks and accidents continue to cause water quality problems in New York. However, programs to effectively regulate these sources do exist and the water quality problems caused by this category are being minimized. One area where further control efforts would be desirable is the protection of critical watersheds from hazardous materials.

Recommendations Using Existing Authority

1. Inventories of petroleum and hazardous materials storage facilities within important aquifer areas should be developed and mapped. This will help identify potential problem areas for local government.
2. Communities should be encouraged to hold cleanup/disposal days for pesticides and other hazardous chemicals. These cleanup days should be held in conjunction with an educational program to make homeowners aware of the damage which can be caused by improper disposal of hazardous chemicals.

Recommendations Which Will Require New Authority

3. Incompatible use regulations are needed for the protection of all primary water supply aquifers in the state. These regulations could prohibit the storage of

hazardous chemicals within a primary water supply aquifer area.

10. Resource Extraction/Exploration/Development

a. Assessment of Source

The category of resource extraction includes both mining and the production of oil and natural gas.

Sand and gravel production accounts for 85% of the mining activity in New York State. Oil production occurs only in the southwestern portion of the state, whereas natural gas production occurs in both western and central New York. Most of the recent gas exploration and development activity is taking place in the Finger Lakes area.

Sand and gravel mining is the most extensive form of resource extraction performed across New York State. Operations conducted in and near streams have the greatest potential to affect water quality. The major pollutant associated with sand and gravel mining is sediment. At all permitted mining operations, erosion and sedimentation control options are implemented to ensure that excessive runoff does not occur. Removal of sand and gravel deposits from the bed and banks of a stream can also cause significant problems if not done in accordance with an approved mined land use plan. Sand and gravel mining is not listed as a significant source in the Nonpoint Source Assessment Report.

When impairments from oil and gas production occur they are usually the result of operational problems such as leaking lines, wellhead connections, or tanks. Other operational problems that can be minor sources of nonpoint source pollution include accidental seepage loss of drilling fluids and spillage of oil.

Leaks from old abandoned and improperly plugged wells may also be a major source of pollution in the long existing oilfields of southwestern New York. These leaks and other illegal brine discharges have caused brine contamination and impairments such as degraded water supplies in isolated areas. Lower fish survival rates are suspected and taste impairment of edible species have been reported by sportsmen.

Five stream segments are on the Priority Water Problem list because of problems related to oil and gas well fields in the Allegany and Genesee River Basins. Many of these operations have existed for more than 100 years, since long before the implementation of any environmental protection regulations.

b. Current Programs to Control Source

Existing programs which address this source operate at the state level. Federal and state laws regulate these sources. Most of the programs identified are operated by DEC.

Mining operations are controlled primarily through the state Mined Land Reclamation Law. Permits are issued by DEC's Division of Mineral Resources for the extraction of minerals from the

ground. Applicants must submit a mined land use plan which includes plans for mining and reclamation. Best management practices such as settling ponds and stabilizing active faces as soon as practical are recommended.

The removal of sand and gravel from streams classified "C(T)" or higher is regulated by the stream protection permit program and the mined land reclamation program. DEC's Division of Fish and Wildlife issues permits for any modifications or disturbance of the channel or bed of a stream. There are some exemptions to this program including Department of Transportation activities and actions by any local governments having a memorandum of understanding with DEC. Local governments frequently mine sand and gravel from streams.

The Oil and Gas Regulation program is another activity administered by DEC's Division of Mineral Resources. Permits are required for oil and gas wells covering all phases of extraction from drilling to plugging and abandonment. Management practices to minimize water quality degradation, such as lining drill pits and installing adequate casing and cement in well bores, are required in the permits.

The only other program identified in the Assessment Report that addresses this source is the educational program at the College of Environmental Science and Forestry. Courses offered at the College deal with oil and gas exploration techniques. One course listed which is pertinent to this source covers the management of oil and gas brines.

In addition to the programs listed in the Assessment Report, the USDA - Soil Conservation Service (SCS) has two technology transfer programs which address this source. They provide technical assistance in the form of preparing Mined Land Reclamation Plans for various sand and gravel operations. The SCS Plant Materials Program also provides technical assistance for the establishment of cover on mined land sites. These programs are delivered to or in conjunction with Soil and Water Conservation Districts.

Existing programs appear to have adequate authority to control this source. One problem area regarding the authority concerns the exemption of local governments and state agencies from stream disturbance permit requirements. Mining sand and gravel from streams can cause sediment problems in the streams. The present system of MOUs between DEC and the agencies (local and state) that remove the gravel needs to be strengthened.

c. Additional Program Needs

The existing programs are performing satisfactorily in controlling this source. Only minor changes to existing programs are recommended.

Recommendations Using Existing Authority

1. The Memorandums of Understanding which are required for local governments under provisions of the Stream

Protection Permit program should include requirements for utilizing best management practices to minimize stream disturbance. (This recommendation also applies to the hydrologic/habitat modification strategy.)

Recommendations Which Will Require New Authority

2. A legislative amendment to the Mined Land Reclamation Law has been proposed that, if passed, will significantly lower the statutory threshold for mining in streams.
3. The Stream Protection Permit Program should include provisions requiring local governments to obtain permits for the mining of sand and gravel from stream beds.

11. Silviculture

a. Assessment of Source

Silviculture is the systematic management or cultivation of woodland for the production of forest products. One aspect of silviculture, which takes place on only a small percentage of the state's 15 million acres of commercial forest each year, is the harvesting of timber, pulp and fuel wood. Water quality problems resulting from this activity tend to be localized and short duration impairments. Other silvicultural activities such as prescribed burning, the application of pesticides, and timber stand improvement are not considered to be water quality threats in New York.

Sedimentation is the principal water quality impairment associated with harvesting and is caused by erosion from poor design and placement of logging roads, trails or landings. Sediment reduces the penetration of sunlight and may settle to adversely affect fish spawning areas. Sediment can shorten the life of water impoundments and add to drinking water treatment costs. A less common, but potentially serious stream impairment, is increased thermal energy resulting from the removal of streambank vegetation. Selective tree removal can reduce this impact and regrowth helps balance overall stream impact. Stream crossing during the harvest can accelerate streambank erosion and occasionally severely disrupt stream ecology.

b. Current Programs to Control Source

Several programs which address silviculture have been identified in the Assessment Report. The programs are from every level of government although most are at the state level and are operated by DEC. Technology transfer is the preferred approach to handling this source.

The federal programs identified are the Agricultural Conservation Program and Forestry Incentives Program administered by USDA's Agricultural Stabilization and Conservation Service. These are the only programs listed for this source which use financial incentives. Soil protection is a primary purpose of the silvicultural practices of the Agricultural Conservation Program. The Forestry Incentives Program, while more production-oriented,

also provides soil protection benefits. Silviculture practices include tree planting, timberstand improvement and site preparation for natural regeneration. Cost-sharing is limited to 65% under the Forestry Incentives Program and up to 75% under the Agricultural Conservation Program.

Another federal program which addresses this source is provided by the Soil Conservation Service. They provide technical assistance in the form of preparing conservation plans for erosion and sedimentation control. The SCS assists in the proper layout of logging roads, the installation of sediment control practices and harvesting recommendations. The SCS program is delivered through or in conjunction with the Soil and Water Conservation Districts.

The state's strategy for dealing with water quality problems associated with silviculture is coordinated by the DEC Division of Lands and Forests. The strategy relies on technology transfer and education to promote the use of sound management practices. In addition to DEC, a number of other agencies are involved and other programs are used to enhance the process and achieve effective control of the condition and possible problems.

DEC's Division of Lands and Forests is implementing Cooperating Consultant Forester and Cooperating Timber Harvester programs in order to increase the rate of adoption and expand the area of application of approved BMPs. Cooperation with the Forest Practice Board and outreach educational efforts to forest landowners to create awareness and encourage the use of BMPs is also part of the strategy.

Soil and Water Conservation Districts encourage the use of proper practices through their authority to prepare Conservation Plans for forest holdings larger than 25 acres. Through an MOU between DEC and the State Soil and Water Conservation Committee which has been adopted by all 57 SWCDs, if a landowner proposes a harvest, the SWCD recommends the use of BMPs to avoid water quality problems and/or advises the use of a forestry consultant.

The Wild and Scenic Rivers program of DEC (administered by the Adirondack Park Agency within the Park) applies to silviculture. Forest harvesting along certain rivers is regulated by this program. Another program which addresses this source is the Stream Corridor Management program. It uses technology transfer to encourage the protection of stream corridors during logging operations.

The College of Environmental Science and Forestry in Syracuse conducts an educational program for forestry consultants. They also provide further education and technology transfer through outreach efforts. These programs provide training for individuals involved in silviculture. Cornell Cooperative Extension also conducts educational programs dealing with forestry. Promotional materials are released through County Extension Offices.

c. Additional Program Needs

The existing efforts to control this source which use

technology transfer as the primary control option, appear to be adequate. Additional funding to permit the expansion of existing programs is the primary need. Increasing the frequency of post timber harvest evaluations would also be desirable.

12. Other Sources

There are several other categories of nonpoint source pollution which were not listed separately in the Assessment Report but which remain a significant concern. A brief description of these sources and the recommended control options for each follows.

a. Roadbank Erosion

Erosion from unvegetated ditches along state, county and local roads is believed to be a significant source of sediment during spring runoff each year. Many highway departments clean ditches in the fall, leaving no time to reestablish vegetation before winter. Spring runoff then results in significant erosion.

No waterbodies have been identified which are directly affected by roadbank erosion. It is regarded as a generic problem in many parts of the state but due to the intermittent nature of the source, the problems are frequently not identified.

The existing programs which address this source are the general erosion control activities performed by Soil and Water Conservation Districts and the Soil Conservation Service (SCS). The Districts encourage local governments to modify their practices to minimize roadbank erosion. Through the SCS's Plant Materials program, various amounts of seed, woody shrubs and plants can also be provided to stabilize roadbanks.

Technology transfer appears to be the most appropriate control option for this source. Training materials are needed to demonstrate to highway superintendents that roadbank erosion is a problem and to recommend management practices which will reduce the water quality impacts. These options can be pursued using existing authority.

b. Storage and Application of Deicing Agents

Road salt storage piles have been responsible for contamination of groundwater in many locations across the state. Application of salt is regarded as a potential problem in many areas. Road sanding has been identified as a problem on a number of streams in the Adirondack Mountains area as well as in other areas of the state.

The primary effect of improper salt storage is to make groundwater unsuitable for drinking. While the chloride which enters wells is not considered a major public health risk, it can result in an objectionable taste in the water. High levels of sodium can pose health risks, however. Shallow individual wells are more frequently affected than deeper municipal wells.

The threat to groundwater quality from the use of deicing compounds is considered far less significant than the threat from

improper storage. However, the use of deicing agents as well as sand spreading on highways during the winter can cause water quality problems in surface waters. Road sanding is listed as the primary source of impairment on 12 stream segments on the Priority Water Problem List. The sediment which enters streams as a result of this source adversely impacts fish propagation and survival.

The groundwater program of DEC recognizes problems caused by road salt storage. It employs a planning approach by documenting the problems and assessing their impacts. The Division of Water has issued a Technical and Operational Guidance Series memo on the storage and use of highway salt and salt/sand mixtures. It encourages proper storage of salt and limiting the application of salt to only what is needed.

More extensive use of the planning approach to document the extent of problems caused by deicing agents is needed. Research and demonstration projects to determine the impacts that salt application has on the ecosystem along highways are also recommended. Technology transfer to encourage proper storage and application practices would be beneficial. Finally, since salt storage problems have been shown to be a common source of groundwater contamination, a regulatory program to require storage facilities that will not result in water quality problems is needed.

CHAPTER V

WATERSHED PROGRAMS FOR
CONTROLLING NONPOINT SOURCE POLLUTION

A. Introduction

Prevention and control of nonpoint sources are achieved principally through use of management practices. As described in the Nonpoint Source Assessment Report, these practices are intended to preclude or reduce the availability or transport of materials that could adversely affect the quality of surface or ground waters. A necessary part of the Nonpoint Source Management Program is determining the appropriate geographic area for implementing such practices. There are and will be finite resources available for nonpoint source management. The program must recognize that certain problems are best addressed through practices applied at the watershed level while other sources will require a statewide approach. A comprehensive program for nonpoint source management must include provisions for both.

1. Use of Statewide and Watershed Programs

The nature of a particular source, the threat it poses, or the problems it causes determine whether a statewide or watershed approach for control is appropriate. A statewide program is applicable in a number of circumstances.

First, basic preventative programs to avoid water quality impacts from nonpoint sources should be implemented through regular application of management practices applied statewide with no particular geographic emphasis. A source category that constitutes an unacceptable threat to surface or groundwater or both no matter where it is located is one example of this situation; for instance, petroleum and hazardous materials bulk storage. The management practice which has been adopted to control this source is a construction code for storage tanks. A statewide regulatory program requires that this code be followed. Another example is where potential impacts may vary geographically, but control is feasible only in a statewide approach. The regulation of sale and use of pesticides that leach easily through sandy soils could fall in this category. Sources that have a transitory but significant effect on water quality are also candidates for general approaches, for instance, requiring practices such as basic erosion and sediment control for construction sites. Finally, in addition to preventing nonpoint source pollution, some practices may have other benefits such that their general use should be promoted even though water quality benefits may vary considerably according to geographic setting. Contour and strip crop farming are practices that conserve soil wherever they are used and can protect water

quality, depending on the proximity of the treated land to a surface waterbody.

Beyond the goal of problem prevention, the remediation of the effects of pollution from some nonpoint source categories calls for a statewide approach. These include the widespread use or discharge of various substances to the environment and existing pollutant accumulations from prior activities on the landscape. Examples are atmospheric deposition, non-complying landfills, and contaminated sediments. For dealing with pollution from these sources, watershed programs will not help. A statewide (or national) program context must be used.

Watershed management programs have utility in addressing water quality problems or threats caused by land uses that change the earth's surface, add substances to it and/or change drainage patterns leading to additional soil erosion and transport of various contaminants to surface waters. Such factors as the density of activities on the land, the proximity of the land use to surface waterbodies (as well as groundwater recharge areas), the nature of the terrain, the types of soil and climatological factors will affect the severity of the water quality impacts. Thus, the effects will vary according to the character of the watershed. Among the source categories that are of concern in these circumstances are urban runoff, agricultural activities and resource extraction. The most efficient approach to water quality problems caused by sources in this category focuses on the specific land uses and activities that degrade or threaten waters.

In this situation, the entire area that contributes runoff to the waterbody, known as a watershed, must be considered to properly address the problem. The validity of the hydrologic unit concept is supported by the pollutant-generating processes and transport mechanisms of nonpoint sources of pollution which are often widespread in origin. The pollutants are generally transported by surface runoff or by water infiltrating through the soil profile.

The watershed is also the logical unit to plan a nonpoint source management program because the contributory area will often cross political boundaries. Nonpoint source problems can be resolved only when all land use activities significantly contributing nonpoint source contaminants to a waterbody are managed. For each watershed, the list of appropriate management practices can be refined, critical sites can be identified and the extent to which management practices must be applied to meet the stated water quality goals can be determined.

2. Context for Choosing Watershed Priorities

As described in Chapter V of the Nonpoint Source Assessment Report, there are a number of programs at all levels of government which have a role in the control of nonpoint source pollution in

New York. Each program has its own goals and objectives and each has its own priorities. The Management Program must recognize these different priorities but still establish a framework which will allow programs to work together to control nonpoint source pollution.

The scope of a program is one factor which influences priorities. Programs at the various levels of government (and even different agencies at the same level) likely will have different priorities and there must be a recognition that this will occur at federal, state, regional, and local levels for watershed management.

The role of DEC in relation to the program structures that can develop in this setting will vary from acting as lead agency, in some instances, to cooperating through technical or financial assistance, to reviewing programs for consistency with state goals and programs. In carrying out its responsibilities for nonpoint source management, DEC will follow the guidelines listed below:

- a. Priority will be placed on addressing the waterbodies identified in the list of waterbodies prepared pursuant to Section 17-1407 of ECL for state funded projects, for consistency review of federal proposals, and for recommending proposal candidates for other agencies.
- b. For federal proposals with funding designated for waterbodies outside the state to which New York waters are tributary, such as the Chesapeake Bay, the Assessment List will not be a limiting review criterion. However, DEC will encourage the use of funds to also benefit waters within the New York portion of the drainage basin that are affected by nonpoint sources.
- c. For federal or state funds appropriated for specific state waterbodies or drainage basins, such as the Great Lakes, DEC will recognize the geographic designation in reviewing proposals for consistency with state programs.
- d. For local programs supported only by local funding and local efforts, DEC will recognize local priorities. DEC will also encourage the implementing agencies to utilize the prioritized list described above in a. in choosing projects.

3. Identification of Candidate Watersheds

The Nonpoint Source Assessment lists waterbodies affected by nonpoint source pollution. Chapter II of this report describes the system to be used in future DEC Assessments for classifying the water quality effect of nonpoint sources and for keeping the list current.

The sources of the pollutants affecting the waters listed in the Nonpoint Source Assessment Report are sometimes related to activities on the land, sometimes not. For those waters primarily affected by atmospheric deposition and acid rain, for instance, the problem source lies outside the tributary watershed and local watershed programs will do little to diminish the impact. For waters affected by contaminated sediments deposited as a result of past point or nonpoint source activities, resolution of the problem can be accomplished only by removal of the material or some in-place neutralization. If the parent sources no longer exist, watershed programs can do little to solve the problems. For other waters where the water quality impacts or threats are related to current activities in the watershed, a targeted approach for management is the appropriate means of reducing the effects.

The first step in defining the universe of watersheds which are candidates for specific programs is to analyze the Assessment listing of degraded and threatened waterbodies and sort out those where nonpoint sources from land use activities in the watershed are of concern. The size of the tributary land area for these waters can vary from a small watershed to an entire river basin. In designating the area to be managed, the hydrologic watershed units as defined on the USDA-Soil Conservation Service "Hydrologic Unit Watershed Map-1980, State of New York" will be the basic areal units and will be the building blocks for describing larger hydrologic areas. Thus, a localized problem in the headwaters of a river system could have a single hydrologic watershed associated with it while a large lake could have half a dozen hydrologic watersheds.

The current watershed listing derived from the updated assessment (as described in Chapter II) is found in Appendix A of this report. It includes the tributary watersheds for those waters on the Assessment List which have a nonpoint source as a primary cause of water quality impact, excluding atmospheric deposition and contaminated sediment. Segments which have atmospheric deposition, contaminated sediment or a point source as the primary source have also been included when a nonpoint source is listed as a secondary source.

B. Implementing Watershed Management Programs

1. Roles of Different Governmental Levels

The spatial nature of nonpoint source water pollution suggests a control program with planning and implementation carried out at an appropriate level of government. Small watershed concerns can best be addressed at the local level; river basin needs may require a federal, state, or regional lead with local participation. The program, however, must not be fragmented. It will be developed under the leadership and coordination of NYSDEC, the state lead water quality agency, especially with regard to identification of

water quality objectives, evaluation of water quality problems, and development of overall control program direction.

An effective nonpoint source control program should foster the cooperation of diverse agencies and organizations. Federal agencies can bring external funding, related technical and organizational experience from similar projects, and other benefits to state NPS projects. Where appropriate, regional agencies should be involved because the water resources of a state can affect those in neighboring areas, and inter-area cooperation will benefit all participants. Local agencies and organizations are essential because they can provide the commitment and implementation effort that ultimately determines success or failure. Section 10 of the Soil and Water Conservation District Law allows two or more districts to cooperate with one another. This arrangement might be useful in addressing problems on watersheds that are in more than one county.

2. Establishing Watershed Priorities

Although high water quality resources are important to the economic welfare of New York and are valued by the public, there are not enough financial resources to address all existing significant water quality problems. Establishing priorities provides a means for focusing available technical and financial resources on a limited geographic region and improves chances for achieving visible water quality improvement. Such demonstrated water quality benefits should result in increased public support of NPS control programs and better awareness of overall water quality issues. A change in attitude corresponding with an increase of knowledge and skill of NPS control are primary ingredients in achieving lasting water resource protection.

Setting priorities will help set direction, but may also cause conflict among the various state and local organizations and agencies that compete for limited resources. To keep the selection process open and to maximize the information available to reach an informed decision, all interested agencies and organizations should be represented. The causes and impacts of the NPS water quality problems are diverse; therefore, the process should include participation from all levels of government -- federal, state, regional, county and local. Appropriate agencies include those with interests in water resource planning, natural resource protection, land use planning, point source regulation, agriculture, mining and forestry, construction, economic evaluation and health and welfare.

At the state level, problem watersheds (listed in Appendix A) should be prioritized to achieve an optimal distribution of efforts and funds. The procedure should be driven by several factors:

- Uses being impacted (public health impacts vs. aesthetic problem);
- Severity of water quality problems;
- Extent of knowledge of those problems and their causes;
- The degree to which problems and threats are resolvable considering economic, political and social factors.
- Concerns and interests of participating agencies; and
- Resources and capabilities of institutions.

A three-phase procedure will be used for designating priorities. The steps in this procedure are as follows:

1. DEC, Division of Water, numerically ranks candidate watersheds based on a technical water quality and pollution potential evaluation;
2. Committees in the DEC regions review ranked watersheds and make recommendations;
3. DEC, with the advice of various statewide agency and interest groups, establishes a list of priority watersheds.

a. Scoring Candidate Watersheds Using Technical Criteria

Step 1 above will involve scoring the affected waterbodies in the watersheds using objective, technical criteria. While the system produces a precise numerical score, the final output from the process will be a relative ranking of high, medium or low for each waterbody. This ranking will then be utilized as the priority determination process proceeds. A system that has been used by DEC for a number of years in developing the priority water problem (PWP) list also will be used here. Rather than attempting to develop an independent system, DEC proposes to continue the use of the procedure in the nonpoint source arena. As experience is gained with the scoring process, adjustments can be made.

The scoring system is described in the DEC publication, 1988 Priority Water Problem List, April 1988. A description of this scoring system, updated to reflect the new categories of impact given in Chapter II, is provided as Table V-1. A description of the water quality classifications used in New York is given in Table V-2. In summary, the factors which are included in the scoring are the classified best use, which sets the water quality objective for the waterbody; a problem severity factor; a public access factor; a uniqueness factor; and a factor which relates to the size of the affected waterbody.

TABLE V - 1

**PRIORITY WATER PROBLEM LIST
SCORING SYSTEM**

Details on the scoring factors used to rank segments on the Priority Water Problem (PWP) list follow. Some background on the process leading to the scoring may be helpful in understanding how or why water segments are or are not included.

A detrimental effect on the best uses assigned under New York State water quality standards must be demonstrated in order for a segment to be listed. Table V-2 contains the water quality classifications assigned under the standards and shows the best use for each class.

Based upon discussions with Regional Office personnel, a work sheet is prepared for each segment. Basic information about the affected segment and the type and severity of the problem(s) and supporting documentation is recorded on the work sheet.

The information recorded on the work sheet is then utilized to compute a segment score. The formula for scoring a segment is as follows:

$$\text{Score} = P_1W_1 + P_2W_2 + P_3WF_3 + P_4$$

Maximum Score

P_1 = Classification Factor:	35 points
P_2 = Problem Severity Factor:	30 points
P_3 = Flow Factor:	10 points
P_4 = Potential Resource Value:	25 points
	100 points

W_1 (Stream Classification Weighing Factor)

<u>Factor</u>	<u>Stream Classification</u>
1.0	N, AA(T), A(T), A-Special, AA-Special, AA(TS), A(TS), SA
0.9	A, AA
0.8	B(T), B(TS)
0.7	B, SB
0.6	C(T), C(TS)
0.5	C, SC, I
0.4	D, SD

W_2 (Problem Severity Weighing Factor)

<u>Factor</u>	<u>Severity</u>
1.0	Precluded
0.8	Impaired
0.6	Stressed
0.2	Threatened

W_3 (Flow Weighing Factor)

<u>Factor</u>	<u>MA7CD/10 Flow</u>
1.0	Over 150 cfs, Lake, Estuary
0.7	20 - 150 cfs
0.4	Under 20 cfs

TABLE V - 1

PRIORITY WATER PROBLEM LIST
SCORING SYSTEM
(Continued)

P_4 (Potential Resource Value)

FOR FRESHWATER SEGMENTS:
 (Summation of Three (3) Factors)

Public Access Factor

<u>Points</u>	<u>Accessability</u>
6	Greater than 50%
4	10-49%
2	Less than 10%

Uniqueness Factors

<u>Points</u>	
12	Unique statewide fishery resource
10	Potentially unique or historically significant
8	Similar resources within county
6	Similar resources available locally

Resource Affected Factor

<u>Points</u>	<u>Length/Area</u>
7	More than 5 mi streams More than 100 A lakes
5	Between 1 and 5 mi streams Between 10 and 100 A lakes
3	Less than 1 mi streams Less than 10 A lakes

FOR MARINE WATERS:

Description (Potential Resource Value)

a. Segment includes shellfish areas which are among the most productive in the state for any one of the following: surf clam, hard clam, oyster, bay scallop, blue mussel;	25 (maximum)
<u>or</u>	
Segment includes migratory passage-way for anadromous fish.	
b. Segment includes productive or potentially productive shell-fish beds.	21
c. Segment supports commercial use (for food or recreation) of fishery resources.	18
d. All other segments.	15
e. Segments consists of a blind tributary which is not part of a stream or river.	10 (minimum)

Finally, using the scoring equation, a score is computed for each of the factors, and the factors are summed. Each segment is assigned a priority ranking of high, medium, or low using the following criteria:

<u>Rank</u>	<u>Score</u>
High	80-100
Medium	60-79
Low	Less than 60

WATER CLASSIFICATIONS AND BEST USE RELATIONSHIPS

NOTE: (1) Higher classes (in groups of fresh and saline waters) include the best use of the lower class. Labeling of the best uses from the lower classes also constitute labeled waters.

WATER CLASSIFICATION		BEST USES	"HIGHEST BEST USE"
Fresh Water Group (higher to lower class)	Waters within state-owned forest preserve	Natural condition	- Natural condition
	N	Natural water, includes best uses for A and AA below	- Water in natural condition
	A, AA	Drinking water	- Drinking water
		Primary contact recreation	- Swimming
		Secondary contact recreation	- Fishing and fish propagation
	GA	Potable groundwater	- Drinking water
	B	Primary contact recreation	- Swimming
		Secondary contact recreation	- Fishing and fish propagation
	C	Primary contact recreation	- Swimming
		Secondary contact recreation	- Fishing and fish propagation
	D	Primary contact recreation	- Swimming
		Secondary contact recreation	- Fishing
Saline Water Group (higher to lower class)	(T) Suffix to Classes AA, A, B and C	Trout survival	- Trout survival in addition to best use of classification
	(TS) Suffix to Classes AA, A, B and C	Trout propagation	- Trout propagation in addition to best use classification
	SA	Saline (commercial) shellfishing	- Shellfishing
		Saline primary contact recreation	- Swimming
		Saline secondary contact recreation	- Finfishing and fish propagation
	GSA	Groundwaters -- sources of potable mineral waters, conversion to potable waters or raw material for manufacture of NaCl	- Drinking waters
	SB	Saline primary contact recreation	- Swimming
		Saline secondary contact recreation	- Finfishing and fish propagation
	SC	Saline secondary contact recreation	- Finfishing and fish propagation
	SD	Saline non-contact recreation	- Fish survival (fin & shellfish)

Various sections of water are assigned best uses based on the specifications special class. See a WCR Part VII.

- Class A-Special: (International Boundary Waters)
- Class AA-Special: (Lake Champlain Basin, Upper Hudson Basin and Conn. Water Supply Basins)
- Class "I"-Special: (Lower Hudson, New York City and Long Island waters)

b. Developing the Feasibility of Watershed Management Through Regional Review

The second phase will provide for local input, review and recommendations in the priority setting process. Annually, ranked candidate watersheds will be sent to NYSDEC Regional offices for review by a committee of local agencies and organizations. The local review process will refine the ordering of the candidate watersheds based on the professional judgment and opinions of the committee.

The committee will be chaired by the DEC Regional Director. Committee representation should include, but not be limited to: NYSDEC Regional Divisions of Water and Fish and Wildlife, County Planning Boards, Environmental Management Councils, Soil and Water Conservation Districts, County Health agencies, Cornell Cooperative Extension and Regional Planning Organizations.

Factors to be considered in determining the feasibility of control in a watershed include the following:

- i. Severity of the Water Quality Problem or Threat - The scoring from the first step in the priority setting process provides a measure of the relative severity of problems in the region.
- ii. Understanding of the Cause of the Water Quality Problem - The degree to which the effects on water quality and the designated uses have been verified and documented must be considered. Also, the extent that prior planning and analysis has taken place to identify solutions or preventative actions should be considered.
- iii. Institutional and Program Capability to Act on the Problem - In assessing the feasibility of implementing a control plan in a specific situation, the review committee must consider whether there is an appropriate program available to support the work. Additionally, there must be in existence an appropriate local entity with the necessary authority that is willing to carry out the plan.
- iv. Availability of Funding from State or Federal Sources - Whether funding is available or can be expected to underwrite implementation of the control plan is a basic factor in determining feasibility. State and federal agencies should provide advice to the review committee at the outset as to the availability of monies based on federal or state geographic priorities or on categories of nonpoint source pollution.
- v. Extent of Public Benefits - The magnitude of the net benefits that could accrue if the identified problem or threat were mitigated is an important consideration in

the review. Widespread public and water resource benefits would outweigh those with a more confined or narrow scope. The value of a resource to the public should be considered (for instance, public vs. private waterbody).

- vi. Likelihood of Success - Whether a plan can be implemented or not depends on several additional factors: Are there technical means available to mitigate the problem? Is there public support evident locally for the proposal? Are those who must take action (i.e., the landowner) willing to participate?
- vii. Costs of Inaction - Consideration must be given to the magnitude of damage to the water resource and its use that would occur if no actions were taken.

After considering these factors and any other pertinent concerns, the review committee will identify the watersheds believed to be of highest priority for implementation and submit its findings to the DEC Regional Director.

c. List of Targeted Watersheds

Once reviewed by the regional committees, the DEC Division of Water will make a final ranking of priority watersheds where state funds should be and where federal funds ought to be directed. In doing this, DEC will consult with other state agencies, such as the Soil and Water Conservation Committee, and with state offices of federal agencies, such as the USDA.

3. Allocating State and Federal Funds

Funding sources for implementing nonpoint source control programs are listed in Chapter VII. Some of the sources make funding available for planning activities while others provide cost-sharing assistance for implementation of best management practices. Certain funding is available to address specific nonpoint sources while some money can be used for any source.

The state Nonpoint Source Water Pollution Control program will provide cost-sharing assistance to correct nonpoint source pollution problems. Funding for non-agricultural projects will be administered by DEC, while funding for agricultural projects will be handled by the State Soil and Water Conservation Committee. Each agency is authorized to promulgate regulations regarding the cost-sharing program. Those regulations will set the requirements for the program.

DEC will work with state and federal agencies that have funding available to emphasize priority waterbodies. The inventory of priority waterbodies, required by the Nonpoint Source Water Pollution Control program, will be distributed to interested groups.

The allocation of funding to nonpoint source management activities will be part of this management activity. The availability of state and federal funding will determine the magnitude of the nonpoint source effort. Allocation of funding will be based on priorities for program action. This will apply both to direction of personnel and funding in support of watershed programs.

If local governments want to pursue a nonpoint source problem with their own funding, they will be encouraged to follow guidance from the state program. The selection of watersheds and management practices are the primary areas where consistency is needed.

4. Initiating Programs

Watershed programs, particularly those dealing with small drainage areas, will be initiated at the local level. Successful identification and installation of management practices must be preceded by planning. The planning process should include a public participation element.

DEC will encourage the development of watershed programs by publicizing the Nonpoint Source Program. In cooperation with the State Soil and Water Conservation Committee, county SWCDs will be made aware that program support is available. Also, DEC will provide the current list of targeted watersheds to those federal agencies with nonpoint source programs and encourage them to address priority watersheds. Periodic interagency meetings will be held to discuss and coordinate programs at the pre-proposal stages.

5. Monitoring and Evaluating Programs

As part of its overall water quality management responsibility, DEC will incorporate monitoring to track progress of watershed programs into its assessment program. To acquire information for documenting water quality improvements over the years, the Division of Water will conduct water quality monitoring programs that focus both on small watershed efforts and river basin concerns.

The Division of Water will also provide guidance to other agencies to perform monitoring. Because of the complex and episodic nature of nonpoint source pollution, expertise is needed in the proper collection of water quality monitoring data and interpretation of results in terms of cause and effect. If monitoring is conducted by an outside agency, the verification scheme must be approved by DEC. The scheme must be subject to the same scientific principles and data quality assurance procedures that apply to all sampling and monitoring carried out by DEC.

To maintain public support for adequate funding of the nonpoint source program, it is vital that the program be able to

demonstrate explicitly its effectiveness in restoring and maintaining water quality to support designated uses.

C. Watershed Program Implementation Procedure

The watershed planning process is a sequence of steps which lead to successful implementation of a nonpoint source control program for a specific watershed. It is a logical series of elements which progresses from establishment of improvement objectives through the implementation of resource management systems and to the documentation of water quality results. There must be a cooperation between planning agencies, implementers and land owners/users. The basic components of the watershed planning process are described below.

1. Identification of Lead Agency

For any specific watershed project, a lead agency must be established to supervise implementation of the program. In general, the geographic jurisdiction of the agency should include the entire drainage area of the targeted waterbody. Thus, for a small watershed project, a local water quality agency such as a county soil and water conservation district could be the lead. For a major river basin effort, a state or federal agency could be appropriate unless a regional agency with management capability exists or is created for the purpose. At all levels of scale, an alternative would be an interagency group created to focus on a specific watershed or basin project.

The lead agency would have the responsibility of identifying the various interests needed for participation in the program and establishing procedures for efficiently carrying out the process.

2. Initiation of Public Participation Process

General public awareness of the problems and a broad base of support for control measures will increase the chance of success for a watershed management plan. Effective implementation requires involvement by local decision makers and their constituents in the problem identification and watershed planning process.

Initiating the public participation process early in the program development phase may increase the acceptance of the control program eventually recommended.

3. Watershed Planning

a. Identify Problems and Opportunities for Improvement and Protection

The first step in the planning process is to verify the existence of the water quality problems and threats identified in the assessment. Any other impacts identified during the verification process should also be confirmed. Identifying the

pollutants of concern and the sources then follows. Estimating the relative contribution of the sources present and establishing pollutant reduction goals are the next steps. These steps will be the responsibility of the lead agency with guidance from DEC and cooperation from other appropriate agencies.

i. Confirm Water Quality Status and Use Impacts or Threats

Before initiating a detailed planning process for any hydrologic unit, there must be a verification of the problem or threats. A water quality problem exists only where a classified use is affected. Until the impact on or threat to the use is confirmed, no detailed planning efforts should be undertaken.

For segments where water quality monitoring data exists, the first step of the verification will be to collect and analyze the data to determine if they support the information previously provided. For many segments no monitoring data will exist. Water quality monitoring might be required on some segments. Certain types of impacts might be confirmed using other information. For example, fish surveys might be sufficient to demonstrate a fish survival impairment. Any water quality sampling must conform to the sampling handling protocol and data quality assurance technique used by DEC.

ii. Determine Existing and Potential Pollutants

The next step toward developing a watershed management program is to determine the pollutants of concern. To some extent, this may be evident from the nature of the use impairment or threat identified above but it may also require water quality studies to resolve.

iii. Assess the Watershed and Contributing Sources

Water quality problems resulting from nonpoint sources are frequently caused by more than one source. Therefore, the implementation program may need to address several source categories to achieve water quality improvements. The planning process must assess the entire watershed and estimate the relative contributions from all sources of pollution.

The first step is to construct a map of the watershed with all known point and nonpoint sources plotted. Land uses should also be shown on the map. Overlays might be developed which show factors such as the depth to bedrock, erosion potential, soil type and slope. These would be useful in identifying potential nonpoint source delivery areas. Field reconnaissance should be conducted to verify watershed characteristics shown on the map.

iv. Estimate Contributions from Nonpoint and Point Sources

A control program which addresses only the primary source will often be insufficient to improve water quality. However, it may not be feasible or desirable to address all nonpoint sources which exist in a watershed. An effort to estimate the contribution from each source is needed before selection of implementation options.

Use of available studies and water quality monitoring data will provide some information about the contribution of sources. In many cases, mathematical and/or computerized models that relate land use to nonpoint source water quality impacts can be used to estimate the relative impacts. Models should be based on continuous simulation of hydrologic conditions and should be sensitive to storm event periods. Additionally, they should be capable of relating water quality conditions to specific sources in a watershed or on the land surfaces. The modeling and monitoring studies must be able to establish the linkage between pollutants generated by the sources and impacts to water quality observed in the waterbody.

The results of monitoring data and modeling studies can be used in conjunction with the watershed profile map to identify critical nonpoint source areas. They will also help in establishing a priority among the sources that need to be addressed in the implementation plan.

b. Establish Water Quality Goals and Determine Needed Pollutant Reductions Objectives

The basic water quality objectives to be met by the watershed management program are provided by the classifications of the waterbodies in the watershed. These specify the uses to be protected and the associated water quality needs. They are the basis for determining the degree of impairment.

Pollutant reductions needed to meet the water quality objectives must be established. These reduction goals could then be translated into areas needing treatment to control specific substances found in runoff or into other suitable parameters for planning. At this point in the process, design of a water quality monitoring system to document changes in the receiving waterbodies may be appropriate.

c. Identify Alternative Management Practices or Other Control Measures

After identifying the sources or source categories of concern and the needed pollutant reductions, the next step is to consider the control options which are available to achieve these reductions.

An analysis of management practices which might be used should be conducted. The mix of practices which should be implemented to

achieve the water quality goals must be determined. Additional model studies might be required before "best" management practices are selected. An analysis of practice effectiveness and cost should be factored into determining the best practice.

d. Identify Funding and Programs Currently Available to Support Implementation

In this step of the process, the reality of resources and programs available at the time of implementation must be determined to develop a program plan with maximum opportunity for success. Federal, state and local funding sources should all be examined.

e. Select Alternatives for the Plan

Here the program plan for the watershed comes together by drawing on steps c. and d. above. By combining considerations of what practices are needed with what funding is available, a proposal for a watershed implementation program can be developed.

To assure that all involved understand the implementation program, the measures and controls to be adopted, the responsible parties and the schedule for implementation must be documented. This implementation program will be the basis for review and approvals by other supporting agencies. Before proceeding further with implementation, all interjurisdictional and interagency agreements must be established. These agreements could involve defining cooperative tasks, establishing funding arrangements or clarifying responsibilities.

The plan would be provided to DEC and others for review at this point. Further public participation efforts at this stage would also be appropriate.

4. Implementation of Plan

The lead agency proceeds with the implementation of the approved plan; providing for technical assistance and utilizing funding as specified in the plan. The lead agency would also be responsible for reporting progress.

5. Monitoring and Follow-up

The lead agency, along with cooperating agencies, would provide for monitoring of results of the work and follow-up to ensure maintenance of the installed measures. Effects on water quality would be documented and need for mid-course corrections in the plan be identified.

The procedure summarized above will be repeated for each targeted watershed or hydrologic unit which progresses through implementation. The resources and effort devoted to each step in the process will vary from watershed to watershed. Such factors as the degree of verification of problems, the knowledge of water

quality and the sources impacting water uses, and the ease of selecting and implementing best management practices will affect the emphasis placed on each step.

A fundamental requirement of all watershed programs is the establishment and maintenance of public participation throughout the implementation program. If the people who will enjoy the benefits of a watershed program and who will be called upon to contribute to the implementation of the program, understand the nature of the problem and participate in finding a solution, then the program has a better chance of being successful.

D. Additional Program Needs

The series of steps outlined in this chapter are the basic building blocks of the watershed planning process for controlling nonpoint source pollution. Some of the methodology, particularly the analyses of the source/contribution/water quality effects and the cost-effectiveness of alternate management practices may require sophisticated monitoring and modeling techniques. Research and demonstration projects are needed to test various methodologies in a watershed with documented water quality problems.

CHAPTER VI
IMPLEMENTATION SCHEDULE FOR
NONPOINT SOURCE MANAGEMENT PROGRAM

Nonpoint source pollution management is a complex issue. Numerous land uses and activities are considered nonpoint sources. A nonpoint source problem is often the result of a variety of land uses and many individual sources distributed diffusely over a wide area. Control of nonpoint source pollution by a single program is not feasible.

Nonpoint sources are usually best controlled by modifying activities, practices or operations on the land or by changing land use activities. These modifications can be achieved in many ways including regulation, financial incentives and voluntary compliance. Since many programs already exist that play a role in controlling nonpoint source pollution, it is essential that the management program recognize those efforts and build on to them wherever possible.

Numerous state agencies have programs that address nonpoint sources. DEC has programs within several of its divisions that deal with sources or their effects. The Divisions of Water, Air, Lands and Forests, and Mineral Resources are among those that have programs related to nonpoint source pollutants. Other state agencies with related programs include the Department of Health, the Department of State, the Department of Transportation, the Adirondack Park Agency, and the State Soil and Water Conservation Committee.

County Soil and Water Conservation Districts play a key role across the state in managing several types of nonpoint sources. Many counties also have programs in their health department and planning department that deal with nonpoint sources. Town planning boards and code enforcement officers also address certain nonpoint sources. Many County Cornell Cooperative Extension Associations are involved in educational work related to water quality management.

This entire report describes methods and recommendations for dealing with nonpoint source pollution in New York. Several of the chapters describe processes to be used to handle certain aspects of the problem. Chapter II describes the process for enhancement of the list of state waters affected by nonpoint sources. Chapter V outlines a watershed program implementation procedure. Chapter VIII establishes a review process to assure that federal programs are consistent with the state's nonpoint source program.

The majority of the recommendations for programs to control nonpoint sources are contained in Chapter IV. That chapter

discusses each source category, describes the existing programs which deal with the source and makes recommendations for additional program needs.

A. Implementation Schedule

This chapter is intended to meet the requirements of Section 319(b)(2)(c) of the Water Quality Act of 1987 which call for a program implementation schedule. EPA guidance requires that the Management Program contain a 4-year program. The years outlined in the schedule are based on New York State fiscal years. Therefore, the First-Year refers to the period from April 1, 1990-March 31, 1991; the Second-Year is from April 1, 1991 - March 31, 1992. The Third-Year is from April 1, 1992-March 31, 1993 and the Fourth-Year is from April 1, 1993-March 31, 1994.

The commitment of staff or funding resources to water quality programs is an annual management process. With the year-to-year uncertainty in funding from both state and federal sources, DEC is not in a position to commit to performance objectives which depend on future budgets. Adjustments to the program may also be required annually based on changing priorities set during the Division of Water's management planning process.

In addition, as stated above, control of nonpoint source pollution will require cooperative efforts from a number of federal, state and local agencies. DEC has no control over priority setting or the budget process for these agencies and therefore, cannot make commitments for these other agencies.

The four-year schedule shown below is taken from recommendations made in Chapter IV. The recommendations are listed in the order that they appear in the chapter. They are not listed in any priority ranking. The number to the left of each item refers to the section of Chapter IV that contains the specific recommendation. An evaluation of the effectiveness of the many components of this schedule should be performed at the end of the four year program.

After each item on the schedule, the suggested lead agency or agencies are listed. The abbreviations are explained on Table VI-1. In many cases, other agencies will also have a role in implementing a specific recommendation. In many cases, the activity listed is a program development activity and the agency listed will have a lead role for that phase. Cooperation of local agencies such as Soil and Water Conservation Districts or County Health Departments will be required for the eventual implementation of many of these programs. Organizations such as the New York State Association of Conservation Districts and the Soil and Water Conservation Society will also be called on to assist in implementation efforts.

Table VI-1
List of Abbreviations:

USDA	United States Department of Agriculture
EPA	Environmental Protection Agency
DEC	NYS Department of Environmental Conservation
DOW	Division of Water
SCS	Soil Conservation Service
SWCD	Soil & Water Conservation District
WRI	Water Resources Institute
SSWCC	State Soil & Water Conservation Committee
ASCS	Agricultural Stabilization & Conservation Service
CCES	Cornell Cooperative Extension System
DEC-DOA	Division of Air
DEC-DFW	Division of Fish and Wildlife
RCD	Resource Conservation and Development Councils
DOH	NYS Department of Health
DEC-DCM	Division of Construction Management
DEC-DMN	Division of Mineral Resources
DEC-DLF	Division of Lands and Forests

B. First-Year Implementation Activities

- 1-1 Conduct an update of the assessment of waterbodies and groundwater segments affected by nonpoint source pollution. (DEC-DOW; SSWCC; SWCD)
- 1-2 Develop a watershed planning process for waterbodies with significant water quality problems resulting from nonpoint sources. (SSWCC; WRI; SCS; DEC-DOW)
- 1-3 Conduct a research/demonstration project on an impaired waterbody which applies the watershed planning process to a specific watershed. (DEC-DOW)
- 1-4 Establish catalog of approved management practices for agriculture and diffuse urban runoff nonpoint source categories. (DEC-DOW)
- 1-5 Promulgate regulations for implementation of the state nonpoint source control cost-sharing program. (DEC-DOW; SSWCC)
- 1-9 Develop Memorandums of Understanding with key agencies to assure the coordination of efforts in controlling nonpoint sources. (DEC-DOW; SSWCC; SCS)

- 1-11 Develop a water quality training program for staff of county agencies involved in the control of nonpoint source pollution. (DEC-DOW; CCES)
- 1-12 Develop a procedure for counties to use in preparing county water quality strategies. (DEC-DOW)
- 2-5 Incorporate water quality considerations in farm level planning. (SWCD; SCS)
- 2-6 Develop Memorandums of Understanding with key agencies that administer financial incentive programs for installing agricultural management practices. (DEC-DOW; ASCS)
- 2-12 Advocate that the 1990 Federal Farm Bill include an emphasis on water quality. (DEC)
- 4-1 Expand programs to disseminate the information contained in New York Erosion and Sediment Control Guidelines. (SWCD; SCS)
- 4-2 Develop a model erosion and sediment control ordinance. (DEC-DOW)
- 4-3 Develop guidance on erosion and sediment control. (DEC-DOW)
- 6-1 Complete stormwater management planning guidance manual. (DEC-DOW)
- 6-7 Implement the review of federal development projects to assure that appropriate measures are taken to prevent or mitigate adverse effects from nonpoint source pollution. (DEC-DOW)
- 7-2 Promote the use of existing cost-sharing programs for treatments such as vegetative buffer strips. (SWCD; ASCS)
- 9-1 Develop inventories of petroleum and hazardous material storage facilities within important aquifer areas. (DEC-DOW)
- 10-2 Pursue the legislative amendment to the Mined Land Reclamation Law which will lower the statutory threshold for mining in streams. (DEC-DMN)
- 12b-1 Develop a more complete inventory of the problems caused by deicing agents. (DEC-DOW)

C. Second-Year Implementation Activities

- 1-2 Implement the watershed planning process for two or more waterbodies affected by nonpoint source pollution. This could

- also include aquifer/wellhead protection programs. (DEC-DOW; SWCD)
- 1-4 Establish catalog of approved management practices for remaining source categories. (DEC-DOW)
 - 1-6 Increase educational efforts to make the general public aware of the water quality impacts of nonpoint source pollution. (DEC-DOW; CCES/WRI)
 - 1-8 Establish an information clearinghouse to collect reports on nonpoint source research, demonstration projects and control activities and make them available statewide. (WRI)
 - 1-10 Develop watershed rules and regulations for the protection of water supply sources. (DOH)
 - 2-2 Conduct research on the effects of common agricultural management practices on water quality. (WRI; DEC-DOW; SWCD)
 - 2-7 Expand programs that provide technical assistance to farmers; incorporate water quality concepts into the application of management practices. (SCS; SWCD; CCES)
 - 3-4 Encourage federal legislation to regulate the discharge of precursors to the air. (DEC)
 - 5-1 Encourage EPA to establish nationwide criteria for evaluating the toxicity and risk associated with contaminated sediment. (DEC-DOW; EPA)
 - 5-2 Encourage federal research on the impacts of removal of contaminated sediment and on in-place mitigation measures. (DEC-DOW; EPA)
 - 5-3 Explore the possibility of designating waterbodies with contaminated sediment as state Superfund sites. (DEC)
 - 6-2 Develop educational programs to make local officials aware of opportunities to control runoff from new development. (WRI; CCES; SWCD)
 - 6-3 Prepare a model stormwater control ordinance. (DEC-DOW)
 - 6-5 Encourage research and demonstration projects to study treatment techniques for urban runoff. (DEC-DOW)
 - 7-1 Establish a program to disseminate the principles of stream corridor management across the state. (DEC-DOW; RC&D; SWCD)

- 7-3 Include requirements for BMPs which minimize stream disturbance in the Memorandums of Understanding between DEC & local governments under the stream protection permit program. (DEC-DMN)
- 10-1
- 8-1 Develop a model sanitary code for individual on-site wastewater disposal systems. (DEC-DOW; DOH)
- 8-3 Increase enforcement activities against persons where failing on-site wastewater systems are causing water quality problems. (DEC-DOW)
- 9-3 Prepare a legislative proposal which establishes incompatible use regulations to protect all primary aquifers in the state. (DEC-DOW)
- 12b-2 Encourage research projects that explore the impacts of salt and sand application along highways. (DEC-DOW; WRI)
- 12b-3 Develop technology transfer efforts to encourage localities to properly store and apply deicing agents. (DEC-DOW; WRI)
- 12b-4 Develop regulations for deicing agent storage facilities that will not result in water quality problems. (DEC-DOW)

D. Third-Year Implementation Activities

- 1-2 Implement the watershed planning process for two or more waterbodies affected by nonpoint source pollution. This could also include aquifer/wellhead protection programs. (DEC-DOW; SWCD)
- 1-7 Develop a targeted educational program to make local officials aware of the control options available to them in controlling nonpoint source pollution. (CCES; DEC-DOW; SWCD)
- 2-1 Investigate mechanisms to minimize the impact of agriculture on water quality. (SCS; DEC-DOW; WRI)
- 2-3 Encourage research/demonstration projects on the feasibility of low-input and low-intensity agriculture. (WRI; SWCD; CCES)
- 2-8 Develop technology transfer programs to disseminate available information on the management of animal waste. (CCES; SWCD; WRI)
- 2-10 Investigate the potential for using the concept of cross-compliance at the state level for addressing agricultural nonpoint source problems. (DEC-DOW; SSWCC)

- 2-11 Explore alternatives to the present voluntary participation in conservation programs for agriculture. (DEC-DOW; SSWCC; SWCD)
- 3-3 Conduct research on the impacts of atmospheric deposition on waterbodies in urban areas. (DEC-DOW)
- 4-4 Implement a program to regulate runoff from construction sites based on requirements of ECL Section 17-0808. (DEC-DOW)
- 4-5 Develop a legislative proposal which mandates local erosion and sediment control programs. This program should include provisions for inspection of erosion control measures installed. (DEC-DOW)
- 6-6 Develop technology transfer programs to make local officials aware of the importance of maintaining stormwater control facilities. (WRI; CCES)
- 7-5 Develop regulatory programs (in conjunction with the stormwater management program) which control runoff to prevent damage to streams. (DEC-DOW)
- 8-2 Prepare technical guidelines to assist local governments in using zoning as well as subdivision and site plan review authority to minimize the impacts of on-site wastewater disposal systems. (DEC-DOW; DOH)
- 8-4 Make funding available for communities to correct land disposal problems through the revolving loan fund. (DEC-DOW; DEC-DCM)
- 8-5 Develop a description of potential funding sources for communities to address problems caused by on-site wastewater disposal systems. (DEC-DOW; DEC-DCM)
- 8-6 Encourage demonstration projects which are innovative solutions to correct problems caused by failing on-site wastewater systems. (DEC-DOW; DEC-DCM)
- 8-7 Develop educational programs to make the public aware of water quality impacts resulting from improper disposal of household hazardous wastes. (CCES)
- 11-1 Increase the frequency of post-timber harvest evaluations. (DEC-DLF)
- 12a-1 Establish a technology transfer program to make highway superintendents realize that roadbank erosion does cause water quality problems and to demonstrate BMPs which can reduce the impacts. (DEC-DOW; WRI; SWCD)

E. Fourth-Year Implementation Activities

- 1-2 Implement the watershed planning process for two or more waterbodies affected by nonpoint source pollution. This could also include aquifer/wellhead protection programs. (DEC-DOW; SWCD)
- 2-4 Conduct research on the long-term water quality benefits of land remaining in agricultural use instead of being developed. (DEC-DOW)
- 2-9 Develop educational programs to make farmers aware of water quality problems that can result from improper land management. (CCES; SWCD; WRI)
- 3-1 Expand air and lake monitoring to document the long-term impacts of atmospheric deposition. (DEC-DOW; DEC-DOA)
- 3-2 Conduct research and demonstration projects on possible mitigation measures for waterbodies affected by acid rain. (DEC-DOW; DEC-DFW; WRI)
- 5-4 Encourage the assembly of an international conference on all aspects of the contaminated sediment problem. (DEC; EPA)
- 5-5 Investigate banning certain toxic substances and restricting the discharge of others. (DEC)
- 5-6 Encourage the creation of a new funding mechanism to remediate contaminated sediment problems. (DEC; EPA)
- 6-4 Work with municipalities, through the issuance of SPDES permits for stormwater systems, to minimize the effects of stormwater runoff. (DEC-DOW)
- 7-4 Establish minimum instream flow criteria. (DEC-DOW; DEC-DFW)
- 9-2 Encourage communities to hold clean-up/disposal days for pesticides and other hazardous chemicals. (DEC)
- 10-3 Propose a modification to the Stream Protection Permit Program that will require local governments to obtain permits for mining sand and gravel from streambanks. (DEC-DOW)

CHAPTER VII

SOURCES OF FUNDING AVAILABLE TO IMPLEMENT NONPOINT SOURCE PROGRAMS

Numerous agencies (local, state, federal) have programs and funds for the treatment, management or control of nonpoint sources. Some programs focus directly on nonpoint source control while others advance water quality as a side benefit. Some of these programs have funds which are available for distribution to other agencies, organizations and land users to plan and/or implement nonpoint source water pollution control measures.

The focus of this chapter is to identify the limited sources of available funding for implementation of nonpoint source control programs. It will identify available program funds which are dedicated or may be redirected to nonpoint source water quality activities. Further information about programs listed is available in Chapter V of the Nonpoint Source Assessment Report (February, 1989). A matrix provided as Appendix D, assesses the existing and potential support for nonpoint source control and prevention from the programs listed in the Assessment Report.

A. Funding Sources in the Water Quality Act of 1987

There are several nonpoint source funding mechanisms identified in the Water Quality Act of 1987 in addition to Section 319 (Nonpoint Source Management Programs). The federal financial assistance is provided to states to carry out the legislative intent. In New York, the programs are administered by DEC which has been designated as the state's lead water quality agency.

1. General Sources of Funding

a. Section 106 - Pollution Control Programs

Grants are available to states for the cost of developing and carrying out a pollution control program. The amount available for each state is the reasonable cost of the program as determined by EPA or the allotment for the state, whichever amount is lesser. All water pollution control programs, including the nonpoint source program, are eligible for funding under this section. The funds available in New York were \$4.17 million in FFY 1989⁽¹⁾

Most of the activities carried out by the Division of Water are eligible for funding under this section. These funds were not used for the nonpoint source program since they were needed to support other activities mandated by federal law.

⁽¹⁾ FFY 1989 refers to the federal fiscal year which began on October 1, 1988 and ended on September 30, 1989.

b. Section 201(g)(1) - Governor's 20% Discretionary

These resources are available for any purpose for which a grant may be made under Sections 319(h) and 319(i) (including any innovative and alternate approaches for the control of nonpoint sources of pollution) provided that no more than 20% of the state Section 205 allotment for construction of wastewater facilities may be used for this purpose. Based on the federal allocation, the maximum amount available for nonpoint source control under this provision was \$20.6 million in FFY 1989.

However, due to an overwhelming demand for increased and improved facilities to control and manage point sources, it is unlikely that any portion of these funds will be apportioned to nonpoint source planning and management.

c. Section 205(g) - Administration of Construction Grants Program

Grants are available to states that have been delegated the authority to administer the sections of the Act that implement the construction grants program (Sections 201, 203, 204 and 212). The amount of the grant may be up to the reasonable cost of administering the program. Water quality planning activities including the nonpoint source program are eligible for funding under this program. The funds available in New York were \$5.36 million in FFY 1989.

It is unlikely that money appropriated under this funding will be used for the nonpoint program since the funds are already committed to administer the Construction Grants Program.

d. Section 205(j)(2) - Water Quality Management Planning

Grants are available to states for determining the nature, extent and causes of water quality problems in the state and for identifying the most cost-effective facility and nonpoint measures to meet and maintain water quality standards. Up to 1% of the funds allocated to the state under Section 205 are available for these subsections. The total funds available under this Section in New York were \$1.03 million in FFY 1989. However, Congress mandates that 40% of these funds (or \$412,000 in FFY 1989) be passed through to local planning agencies. This pass-through funding is described in Section e. on the next page. The \$518,000 which remains is used to accomplish administrative functions.

Many of the activities of the Division of Water, including the nonpoint source program, are eligible for funding under this section. However, the 60% administrative funds are not presently used for the nonpoint source program.

e. Section 205(j)(3) - Pass-Through Funding

Under this section, at least 40% of grants provided to states under Section 205(j)(1) must be allocated to regional public planning organizations for water quality management planning activities. This allocation is being used to fund a number of projects in New York including several which are related to the nonpoint source program. Among the projects that were funded in New York in FFY 1988 and 1989 are the following:

<u>Project</u>	<u>Study Focus</u>	<u>205(j) Funding</u>
Bouquet River	Water quality testing and erosion control	\$ 16,036
V. of LeRoy	Water supply watershed mapping and educational program	\$ 52,800
Onondaga Lake	Water quality models for lake	\$380,500
Rochester Embayment	Water quality management plans for watersheds that empty into embayment	\$199,620
Peconic River	Brown tide	\$200,00
Herkimer-Oneida Counties	Groundwater Protection	\$85,750
Southern Tier West	Groundwater Protection	\$97,400
Tug Hill	Groundwater Protection	\$22,400

Funding for these projects which address nonpoint sources of surface water and groundwater total more than \$1 million for FFY 1989. It is anticipated that five projects dealing with groundwater protection will be funded for FFY 1990.

f. Section 205(j)(5) - Nonpoint Source Reserve

Up to 1% of the funds available under Section 205 can be set-aside for carrying out Section 319 of the CWA. This is in addition to the 1% set-aside under Section 205(j)(1). These funds may be used for: program development, implementation of the nonpoint

source management program and implementation of groundwater protection activities. Section 205(j)(5) funds used for program development require no match while funds used for implementation of NPS management program require a 40% non-federal contribution. Section 205(j)(5) funds utilized for groundwater protection require 50% non-federal contribution. Funds available for NPS in New York were \$1.03 million in FFY 1989. The emphasis of Section 205(j)(5) is on planning and management. This is the primary funding source used in the nonpoint source program in New York.

g. Section 603(c)(2) - State Water Pollution Control Revolving Funds

This section establishes the State Water Pollution Revolving Loan Fund (SRF) and authorizes federal funds to capitalize the State SRFs. SRF funds may be used for construction of publicly-owned treatment works, implementation of state nonpoint source management programs, as well as development and implementation of state estuary conservation and management plans. Funds have been allocated and \$105.1 million has been set-aside to capitalize New York's program.

New York State legislation signed in 1989 created the New York State Water Pollution Control Revolving Fund. This legislation was the necessary first step in making the federal allocation available for use in New York. The Federal Act authorizes an additional \$770 million over the next five years, although annual appropriations could turn out to be less.

DEC has compiled a list of known projects that will need financing over the next decade. The list totals \$9.0 billion. With anticipated federal grants and state matching funds, the maximum amount available is only \$1.05 billion. Through financial leveraging, DEC estimates that about \$4 billion in projects can be financed by the end of this century. Since the available funding is less than half the money needed for known projects, it is unlikely that a significant amount will be available for nonpoint source projects through this fund.

h. Section 604(b) - Funds for Planning

Up to 1% of the funds allotted to the state under this section are available to carry out planning activities under Sections 205(j) and 303(e) of the Act. The total funds available in New York under this Section were \$1.03 million in FFY 1989.

Many of the activities of the Division of Water, including the nonpoint source program, are eligible for funding under this section. However, the funds are not presently used for the nonpoint source program.

2. Targeted Sources of Funding

a. Section 104(b)(3) - Research Grants

EPA is funding grants under the authorities of Section 104(b)(3) of the Clean Water Act, Section 8001 of the Resource Conservation and Recovery Act, Section 103 of the Clean Air Act, Section 10 of the Toxic Substances Control Act and Section 1442(b)(3)(c) of the Safe Drinking Water Act. These grants support pollution prevention programs that address the reduction of pollutants across all environmental media: air, surface water, land, groundwater and wetlands. The concept being encouraged through these grants is that further improvements in environmental quality will be best achieved by preventing the generation of potentially harmful pollutants. Source reduction and environmentally sound recycling practices are the means recommended to achieve this goal. This concept ties into Section 104 through the concept that research projects to prevent, reduce or eliminate pollution may be funded.

Grants awarded for FFY 1989 totaled \$3.8 million. EPA expects to make at least ten grant awards in amounts not to exceed \$300,000 during FFY 1990. Organizations awarded funds will be required to contribute at least 10% of the total cost of the projects. State and interstate agencies are eligible to apply for funding.

b. Section 118 - Great Lakes

To help meet the goals of the Great Lakes Water Quality Agreement of 1978, this section continues the Great Lakes National Program Office (GLNPO), establishes the Great Lakes Research Office within the National Oceanic and Atmospheric Administration, and provides funds to states to improve water quality within the Great Lakes basin. Distribution of appropriated funds will be: 40% for the GLNPO for demonstration projects on the feasibility of controlling and removing toxic wastes, 7% for the GLNPO for a nutrient monitoring program and 30% for the Great Lakes Research Office. Nationwide authorized funding is \$11 million per year for FFY 1987 through 1991.

c. Section 314(b) - Clean Lakes Survey

This section requires biennial preparation of a report identifying all publicly-owned lakes in the state.

The report must classify lakes according to trophic condition and list lakes in the state known to be impaired. It must describe procedures to control pollution sources and restore water quality in impaired lakes. The report must also list methods and procedures used to mitigate the harmful effects of high acidity. Finally, it must include an assessment of the status and trends of water quality in lakes. New York received \$649,000 in FFY 1989 through this program.

water quality in lakes. New York received \$649,000 in FFY 1989 through this program.

d. Section 314(d) - Clean Lakes Demonstration Projects

This subsection establishes a demonstration program to develop cost-effective technologies for the control of nonpoint sources of pollution. The funding can also be used to demonstrate techniques for the removal of contaminated lake sediments and to prevent the deposit of sediment in lakes. Beginning in FFY 1987, \$40 million was authorized nationwide to carry out this subsection. The money was to be available until expended.

e. Section 320 - National Estuary Program

This provides funding for attainment or maintenance of water quality in designated estuaries. Estuaries given priority consideration include: Long Island Sound, New York-New Jersey Harbor, and Delaware Bay. Funds are available to state, interstate and regional water pollution control agencies, coastal zone management agencies as well as institutions and organizations.

Grants under this program are available for research, surveys, studies or modeling necessary for the development of a management plan for the estuary. Grants may not exceed 75% of the total cost of the research project. Funding for this aspect of the Long Island Sound was \$1.4 million for FFY 1989. The New York-New Jersey Harbor has proposed one study to assess loadings from atmospheric deposition, resuspension of sediments and stormwater discharges and another to evaluate best management practices and stormwater controls in a small watershed during FFY 1990.

B. Other Funding Sources

1. NYSDEC - Hazardous Substances Bulk Storage

This preventive management program regulates the construction and operation of hazardous chemical bulk storage facilities. The program includes both petroleum bulk storage and chemical bulk storage. Each of these have their own regulations. There are 1,000 hazardous substances listed in DEC regulations that are subject to the chemical bulk storage program. The hazardous substance bulk storage fund was created from storage facility registration fees. The annual authorized spending from this program has remained at \$2.139 million for the last few years. In addition, \$315,800 comes from federal UST funds to finance this program.

2. USDA - Agricultural Stabilization and Conservation Service

a. Agricultural Conservation Program (ACP)

i. Basic Program

This preventive implementation program provides financial assistance to farmers to install soil and water conservation practices which contribute to the reduction of agriculturally related nonpoint sources. Federal cost sharing can be as high as 75% of the cost of the practice (80% for an approved low income producer). The amount budgeted in New York in FFY 1989 was \$4.5 million.

ii. Special Projects

This is a remedial implementation program. There is a portion of the annual national ACP budget set-aside for water quality projects. The program, administered by ASCS, provides financial assistance to farmers within approved watershed areas to install soil and water conservation practices that contribute to the reduction of agriculturally related nonpoint sources. These special project funds are distributed to areas through a national competitive procedure. Project applications are initiated at the local level. The amount awarded for projects in New York during FFY 1989 was \$0.6 million.

The ASCS program in New York also reserves a portion of their annual ACP allocation for state special projects. These projects are selected through a state competitive procedure. Project applications are initiated at the local level. Improvement of water quality is included in the acceptable goals of these projects. In FFY 1989, \$.15 million was awarded for projects through this program.

b. Food Security Act

This is a preventive implementation program with regulatory aspects. Public Law 93-198 was enacted to stabilize food production and to protect soil and water resources. The law contains five provisions, two of which offer funding opportunities.

i. Conservation Reserve Program

This program allows USDA to enter long-term contracts with landowners. In return for financial incentives, the landowner agrees to remove highly erodible land and streambanks from crop production and to control soil erosion by establishing long-term grass and tree cover. Cost share assistance is available for up to 50% of the cost of establishing permanent protective cover on the highly erodible land under contract. Through the first eight signups, a total of 50,500 acres of highly erodible cropland has been placed under contract. Annual rental payments for the

signups, a total of 50,500 acres of highly erodible cropland has been placed under contract. Annual rental payments for the contracted acres equals \$2.8 million. Cost-sharing assistance through this program for FFY 1989 was on the order of \$.2 million.

ii. Conservation Easements

This program allows the Farmers Home Administration to partially cancel loans that are in or near default, in exchange for the placement of highly erodible land and wetland and fragile land in long-term (50 year) conservation, recreation or wildlife use. The dollar value of this program is not readily available.

c. Forestry Incentive Program

This preventive implementation program provides financial assistance to encourage landowners to plant trees on suitable open land and to improve existing stands of trees. Federal cost sharing through this program can be as high as 65%. The amount allocated to New York for this program during FFY 1989 was \$63,000.

3. USDA - Soil Conservation Service

a. Emergency Watershed Protection Program

This is a remedial implementation program. Under this program, P.L. 95-334, SCS is authorized to expend funds for necessary emergency measures to protect life and public property threatened by a natural occurrence. Technical and financial assistance is available to units of government to stabilize streambanks eroded by natural disasters. Funding is authorized by Congress as needed.

b. Watershed Protection and Flood Prevention

This is a remedial implementation program for watersheds of less than 250,000 acres. Authorized by P.L. 79-566, this program focuses on the control of flooding and/or correction of water quality problems resulting from agriculture and hydrologic modification. Technical and financial assistance is available to landowners through the program. The amount budgeted for watershed activities in New York in FFY 1989 was \$0.1 million.

4. NYS Department of State - Coastal Zone Program

While this is primarily a planning program it does have a limited financial assistance aspect. Communities with approved local government revitalization programs (LWRPs) can apply for Waterfront Implementation Grants. These grants can be for the study of a water quality problem or for the design and construction of solutions to the problem. There is a 50% matching requirement for these grants.

C. Potential Funding Sources

It should be apparent from this chapter that, at present, there are limited funds available for addressing water quality problems caused by nonpoint sources. Major funding sources (Section 201(g)(1); Section 603(c)(2)) are being used to correct other high priority problems. Sources directed specifically at nonpoint problems have limited funds available. New funding sources must be developed that are specifically directed at nonpoint source problems.

1. NYS Nonpoint Source Water Pollution Control Program

Chapter 436 of New York State's Laws of 1989 established a state nonpoint source water pollution control program. The purpose of this law is to safeguard the waters of the state by controlling and abating new and existing sources of nonpoint source pollution. It establishes two grant programs.

Both programs provide matching grants for up to 50% of the cost of implementation of best management practices in watersheds of priority waterbodies as identified by DEC. One program is administered by DEC and is available for abatement of non-agricultural nonpoint source problems. The other program is administered by the State Soil and Water Conservation Committee and is to be used to address agricultural nonpoint source problems.

The law did not provide an appropriation sufficient to establish the cost-sharing program. Funding will be needed to make this a viable option.

CHAPTER VIII

INTERGOVERNMENTAL CONSISTENCY WITH THE STATE NONPOINT SOURCE PROGRAM

One requirement for the Management Program, based on Section 319 of the Clean Water Act, is a listing of federal financial assistance programs and federal development projects which the state plans to review for their effect on water quality. The purpose of this review is to determine whether such assistance or development projects are consistent with the state's nonpoint source program.

There are several review mechanisms that can be used for federal projects. The primary opportunity is under the provisions of Executive Order 12372 which requires federal agencies to make changes in response to the concerns of a state program. The National Environmental Policy Act provides another review opportunity to consider federal actions. However, federal projects make up a small percentage of construction that occurs in the state each year. State agencies and local governments approve numerous actions which can have significant environmental impacts. The State Environmental Quality Review Act provides an opportunity to assure that many of these actions are consistent with the state nonpoint source program.

The purpose of this chapter is to describe the existing review opportunities and explain how the consistency requirement provisions will be applied to the nonpoint source program. It outlines the criteria that will be applied in the review process.

A. Intergovernmental Review of Federal Projects

Presidential Executive Order 12372, issued in 1983, requires federal agencies to follow the process that the state establishes for reviewing prospective applications for federal aid. It also says that federal agencies should make efforts to accommodate state and local concerns about proposed projects.

Under EO 12372, appropriate agencies and departments of the federal government are required to accommodate the concerns that the state may express. Used in this context, the term "accommodate" means that "any project proposed to be developed by a federal agency or for which any person is seeking assistance must be in conformance with state views, policies, regulations and laws. If a state objects to any aspect of a proposed project, then that aspect must be modified to reflect the views communicated by the

state"¹. If a federal agency cannot accommodate the state's concerns, it must explain why it cannot do so.

Accordingly, the New York State Intergovernmental Review Process was established on October 30, 1984, by Gubernatorial Executive Order No. 51. The state's Division of Budget was designated as the State Clearinghouse to administer the project review process.

1. Goals

The goals of the review process include:

- a. Providing opportunities for intergovernmental consultation on applications with a view toward strengthening deficient proposals before they are submitted to the appropriate federal agency for approval;
- b. Fostering intergovernmental cooperation and coordination;
- c. Avoiding duplication; and
- d. Providing a formal mechanism for the timely exchange of information among the various levels of government on proposals that will potentially affect them.

2. Program Coverage

Under Executive Order 12372, each state is to determine which federal programs will be subject to the state's review process. There are numerous programs listed in the 1988 Catalog of Federal Domestic Assistance (CFDA) with the potential for taking actions that could contribute to nonpoint source pollution. Review of individual applications is the best method for assuring consistency for some programs, but for others that is not feasible. A more general method for review is needed for those other programs.

The appropriate method for review of a specific program will be determined based on its nature. Programs that involve significant construction activities of significant financial magnitude will be reviewed through the weekly project list compiled by the State Clearinghouse. For operational programs such as those sponsored by the Agricultural Stabilization and Conservation Service and Cooperative Extension, reviewing individual project applications is not feasible. Memorandums of Understanding between DEC and key agencies will be used to achieve consistency with these programs.

¹ Comments of Senator Durenberger of Minnesota speaking to his understanding and interest in the enactment of the federal consistency portions of Section 319 of the Clean Water Act. (Congressional Record, Senate, January 4, 1987).

Table VIII-1 lists the eligible federal programs that will be reviewed for consistency with the nonpoint source program. The extent of review for individual projects will be based on the likelihood that a project will have a significant impact on water quality. The nature of the review process will also be determined by the number of staff available to perform the reviews.

Most of the programs shown on Table VIII-1 are currently included in the New York State Intergovernmental Review Process. A request to add programs that are not included will be sent to the State Clearinghouse. As the nonpoint source program develops, additional programs may be added to the review process. Programs will be added to the list when it is determined that they are having a major impact on water quality.

As discussed above, review of individual applications is not feasible for some programs. Memorandums of Understanding between DEC and the appropriate federal agency will be developed in these instances. The following are federal agencies with which this method will be used to assure consistency with the nonpoint source program:

Department of Agriculture:

- Agricultural Stabilization and Conservation Service;
- Extension Service (administered by Cornell Cooperative Extension);
- Soil Conservation Service.

Department of Interior: Geological Survey

3. Review Coordination

State-level review is coordinated by the State Clearinghouse. All federal agencies with notification responsibilities and all applicants for federal assistance under covered programs are instructed to transmit notifications of interest to: New York State Clearinghouse, Division of the Budget, State Capitol, Albany, NY 12234.

Local review outside of New York City is coordinated by regional planning boards where they exist, and through county governments, in those counties not falling within the jurisdiction of a regional planning board. In New York City, the review is coordinated by the Mayor's Office.

4. Notification and Review Process

Federal agencies subject to the review process that propose to undertake any direct development activity within New York State

Table VIII-1

Federal Programs Which Fund Projects That DEC
Wishes To Review For Nonpoint Source Consistency

I. DEPARTMENT OF AGRICULTURE

A. Farmers Home Administration

- 10.414 Resource Conservation and Development Loans
- 10.416 Soil and Water Loans
- 10.418 Water and Waste Disposal Systems for Rural Communities
- 10.419 Watershed Protection and Flood Prevention Loans
- 10.422 Business and Industrial Loans
- 10.423 Community Facilities Loans

B. Soil Conservation Service

- 10.901 Resource Conservation and Development
- 10.904 Watershed Protection and Flood Protection
- 10.906 River Basin Surveys and Investigations

II. DEPARTMENT OF COMMERCE

A. Economic Development Administration

- 11.300 Economic Development - Grants for Public Works and Development Facilities
- 11.302 Economic Development - Support for Planning Organizations
- 11.304 Economic Development - Public Works Impact Projects
- 11.305 Economic Development - State and Local Economic Development Planning

III. DEPARTMENT OF DEFENSE

A. Department of the Army, Office of the Chief of Engineers

- 12.100 Aquatic Plant Control
- 12.101 Beach Erosion Control Projects
- 12.104 Flood Plain Management Services
- 12.105 Protection of Essential Highways, Highway Bridge Approaches and Public Works
- 12.106 Flood Control Projects
- 12.107 Navigation Projects
- 12.108 Snagging and Clearing for Flood Control
- 12.109 Protection, Clearing and Straightening Channels
- 12.110 Planning Assistance to States

IV. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

A. Community Planning and Development

- 14.218 Community Development Block Grants/Entitlement Grants
- 14.221 Urban Development Action Grants
- 14.852 Public and Indian Housing - Comprehensive Improvement Assistance Program

Table VIII-1

Federal Programs Which Fund Projects That DEC
Wishes To Review For Nonpoint Source Consistency

(Continued)

V. DEPARTMENT OF TRANSPORTATION

A. Federal Aviation Administration

20.106 Airport Improvement Program

B. Federal Highway Administration

20.205 Highway Planning and Construction

C. Urban Mass Transportation Administration

20.500 Urban Mass Transportation Capital Improvement Grants

D. Maritime Administration

20.801 Development and Promotion of Ports and Intermodal
Transportation

VI. SMALL BUSINESS ADMINISTRATION

59.037 Small Business Development Center

VII. ENVIRONMENTAL PROTECTION AGENCY

66.418 Construction Grants for Wastewater Treatment Works

66.433 State Underground Water Source Protection

66.435 Clean Lakes Cooperative Agreements

66.456 Comprehensive Estuarine Management

66.501 Air Pollution Control Research *

66.502 Pesticide Control Research *

66.504 Solid Waste Disposal Research *

66.505 Water Pollution Control - Research, Development
and Demonstration *

66.600 Environmental Protection Consolidated Grants -
Program Support

66.700 Pesticide Enforcement Program*

66.801 Hazardous Waste Management - State Program Support

66.804 State Underground Storage Tanks Program

* These programs are not currently included in the New York Intergovernment Review Process. A request will be made to add them to the process.

must inform the State Clearinghouse. The agency must also inform prospective applicants of their obligation to provide a timely notification of intent to the State Clearinghouse. Notification procedures for applicants are described in the "Draft Procedural Guideline Governing New York State Intergovernmental Review Process".²

Upon receipt of a notification of intent, the State Clearinghouse determines whether it constitutes a reviewable project. On a weekly basis, the State Clearinghouse compiles a summary of reviewable project notifications received during the prior week. This list is sent to all state review agencies, including the NYSDEC.

As a general rule, the deadline for receipt of review comments is 30 days after the date on which the list is distributed, but the State Clearinghouse reserves the right to alter this period. The time period can be extended if any review agency notifies the Clearinghouse that it requires more time to evaluate potential problems with a proposal or to negotiate revisions with an applicant. In all cases, however, final action on a proposal must occur no later than 60 days after its inclusion on the broadcast list.

At the end of the review period, both the State Clearinghouse and the appropriate substate review coordinator directly notify each applicant of the outcome of the review.

The substate review agency responds to the applicant with either: (a) a clearance letter, together with any informal comments it wants to communicate; or (b) a notice that formal comments setting forth objections to the proposal have been transmitted to the State Clearinghouse for its disposition.

The State Clearinghouse responds to each applicant with either: (a) a clearance letter, together with any comments received from reviewing agencies; or (b) a notice that a recommendation has been sent to the federal funding agency.

Federal agencies are advised to look for the State Clearinghouse response as evidence that intergovernmental review procedures have been completed with respect to individual applications or proposed projects.

5. Role for DEC in the Intergovernmental Consistency Review Process

The following are steps that DEC's Division of Water (DOW) will take to facilitate the review of federal projects for consistency with the Nonpoint Source Management Program.

² New York State Division of the Budget, State Capitol, Albany, NY 12224.

- a. DOW will review the weekly broadcast list.
- b. DOW will request through the State Clearinghouse that eligible federal programs in Table VIII-1 currently not covered in the intergovernment review process be added to the list of those covered.
- c. DOW will designate project review coordinators in Central and Regional Offices.
- d. DOW will develop project review criteria.
- e. DOW will review project proposals to assure consistency with the nonpoint source program.

B. State Environmental Quality Review

The State Environmental Quality Review Act (SEQR), which became effective June 1, 1976, provides an additional opportunity for ensuring consistency with the Nonpoint Source Management Program. The basic purpose of SEQR is to incorporate the consideration of factors into the existing planning, review and decision-making process of state, regional and local government agencies at the earliest possible time.³ To accomplish this goal, SEQR requires that all agencies determine whether the actions they directly undertake, fund or approve may have a significant effect on the environment, and if they do, prepare or request an environmental impact statement.

No agency is to carry out, fund or approve an action until it has complied with the provisions of SEQR. No physical alteration related to an action is to be commenced by a project sponsor, and an agency is not to issue a decision on any action that it knows any other involved agency has determined may have a significant effect on the environment until a final EIS and findings statement has been prepared.

1. Actions under SEQR

Actions under SEQR include:

- a. Approval or direct development of physical projects. For example:
 - . shopping centers
 - . factories and office buildings
 - . dredging
 - . residential development

³ SEQR is applicable to all state and local agencies within New York State including all political subdivisions, districts, departments, authorities, boards, commissions and public benefit corporations.

- . public buildings
- . gravel mines
- . roads
- . landfills

b. Planning activities that require a government agency decision. For example:

- . park development plans
- . formation of districts
- . land use plans

c. Adoption of agency rules, regulations, procedures and policies. For example:

- . local zoning and planning
- . wetlands protection
- . public health regulations
- . handling of toxic wastes

2. Determination of Significance

To require an environmental impact statement (EIS) for a proposed action, the lead agency must determine that the action may include the potential for significant environmental effect. For example, stormwater runoff from a proposed subdivision or shopping plaza might have a significant environmental impact on a waterbody in terms of downstream flooding, water quality degradation and possible loss of fish and wildlife habitat.

In making a determination of significance, the lead agency must:

- a. consider the action as defined in Section 617.2(b) and 617.3(k) of the Rules and Regulations for SEQR;
- b. identify relevant areas of environmental concern;
- c. thoroughly analyze the areas of environmental concern to determine if the action may have a significant effect on the environment; and
- d. set forth its determination of significance in a written form containing a reasoned elaboration including reference to any supporting documentation.

3. Preparation of an Environmental Impact Statement

All agencies are to prepare, or cause an applicant (for a permit) to prepare an environmental impact statement on any action they propose or approve which may have a significant effect on the environment. The purpose of the impact statement is to provide detailed information about the effect a proposed action is likely to have on the environment, to list ways in which any adverse

effects might be minimized, and to suggest alternatives to the action. The statement is used as the basis for a decision whether to undertake or approve the action.

An environmental impact statement must include information setting forth the following:

- a. a description of the proposed action and its environmental setting;
 - b. the environmental impact of the proposed action including short-term and long-term effects;
 - c. any adverse environmental effects which cannot be avoided should the proposal be implemented;
 - d. alternatives to the proposed action;
 - e. any irreversible commitments of resources which would be involved in the proposed action should it be implemented;
 - f. mitigation measures proposed to minimize the environmental impact;
 - g. the growth-inducing aspects of the proposed action, where applicable and significant;
 - h. effects of the proposed action on the use and conservation of energy resources, where applicable and significant.
4. Recommendations for Facilitating Coordination Between the Nonpoint Source Management Program and the SEQR Process

The following are recommended steps that DEC's DOW should take to facilitate coordination between the Nonpoint Source Management Program and the SEQR process:

- a. DOW to develop guidance documents on nonpoint source pollution control standards of performance and BMPs that can be used by agencies and/or project sponsors to minimize, alleviate or mitigate the short- and long-term water quality impacts associated with proposed development projects or related actions.
- b. Nonpoint source management guidance documents to be made available to assist state and local agencies, and others outside government involved in the construction industry in complying with SEQR.

C. Additional Review Mechanisms

A number of other programs exist which may be used to facilitate consistency between various actions and the state's Nonpoint Source Program.

1. Other Program Review Opportunities

Procedures have been established to review proposed federal actions for their consistency with New York's Coastal Management Program. The New York Department of State has a bureau that reviews about 1,000 federal actions each year to assure consistency with the programs. When a local government adopts their own coastal management program, the local officials are then responsible for reviewing federal actions.

The state is a participant in the National Estuary Programs for Long Island Sound and the New York-New Jersey Harbor. Section 320 of the Water Quality Act of 1987, which establishes the National Estuary Program, provides the authority for review of federal financial assistance programs and federal development projects to assure consistency with the estuary program. This review would provide another opportunity to assure that federal actions are consistent with the state's nonpoint source management program.

The National Environmental Policy Act's (NEPA's) Environmental Assessment/Environmental Impact Statement process can be a useful mechanism for identifying and tracking proposed federal development projects. Environmental Impact Statements (EISs) prepared for all major federal actions, as well as the environmental assessments prepared to determine the need for an EIS, should disclose the potential nonpoint source impacts of the action and therefore indicate the need for a review of consistency with New York's Nonpoint Source Program.

2. Recommendations for Coordinating Consistency Reviews

The following are recommended steps that DEC's DOW should take to facilitate coordination between the Nonpoint Source Program and the Coastal Management Program, National Estuary Program and the NEPA process.

- a. DOW to provide guidance documents on nonpoint source pollution control standards of performance and BMPs to Coastal Management Program staff and National Estuary Program staff for use in consistency reviews.
- b. DOW to review Environmental Impact Statements prepared under NEPA. DOW to provide sponsoring agencies or applicants involved in preparing an EIS with guidance documents on nonpoint source pollution control standards of performance and BMPs.

D. Project Review Criteria

Review criteria for the state Nonpoint Source Program will take the form of:

- . consistency with established nonpoint source implementation priorities (as discussed in Chapter V);
- . specific performance standards or guidelines for specific nonpoint source categories; and
- . approved management practices for specific nonpoint source categories.

Different performance standards (guidelines) and management practices will be used for each nonpoint source category. The basis of authority for the standards and practices will also vary among the categories. For example, the standards for controlling leaks and spills have been promulgated as regulations for the petroleum and hazardous chemical bulk storage programs. In contrast, the guidelines for controlling urban runoff are contained in a Division of Water Technical and Operational Guidance Series Memo.

In addition to performance standards and BMPs, the following illustrative questions are intended to help guide the consistency review process:

1. Does the project comply, or furnish reasonable assurances of compliance with applicable federal, state and local laws, regulations and ordinances?
2. Is the project consistent with state, areawide, and/or local planning efforts?
3. Is the project likely to produce any significant adverse effects on the environment (e.g., does it reflect appropriate land use, prudent development and conservation of natural resources)?

APPENDIX A

PRIORITY CANDIDATES FOR WATERSHED PLANNING

APPENDIX A

Appendix A is a list of Waterbodies identified as having water quality problems with a nonpoint source (excluding atmospheric deposition and contaminated sediment) as the primary source. They have been grouped according to watershed. The listing also includes waterbodies where the primary source is a point source or contaminated sediment or atmospheric deposition but there is a nonpoint source as the secondary source.

The list was derived from the 1989 update of the Assessment. The data was collected using the process described in Section C of Chapter II of this report (pgs. II-4 and II-5.)

There has been no verification of the data presented. The degree of the water quality problem, as well as the pollutants and sources contributing to that problem, must be verified before the segments can be added to the Division's Priority Water Problem list. The verification procedure was described in Section D of Chapter II (pgs. II-5 and II-6).

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APPENDIX A-1
PRIORITY CANDIDATES FOR WATERSHED PLANNING
LAKE ERIE - NIAGARA RIVER BASIN (01)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
01-01	Niagara River Main Stem	04120104.010	Peace Bridge to Tonawanda Creek	15-001	NIAGARA RIVER	-- Erie	Erie	Priority Organics	** Urban Runoff
	Niagara River Main Stem		Peace Bridge to Tonawanda Creek	15-002	TWO MILE CREEK	-- Erie	Erie	Aesthetics	** Urban Runoff
	Niagara River Main Stem		Peace Bridge to Tonawanda Creek	15-003	SCAJAUADA CREEK	-- Erie	Erie	Aesthetics	** Urban Runoff
	Niagara River Main Stem		Peace Bridge to Tonawanda Creek	15-039	DELAWARE PARK LKE	-- Erie	Erie	Nutrients	Urban Runoff
	Niagara River Main Stem	04120104.100	Grand Island	15-012	GRAND ISLAND	-- Erie	Erie	Pathogens	On-site Wastewater Systems
	Niagara River Main Stem	04120104.110	Tonawanda Creek to Lake Ontario	32-001	UPPER BERGHOLTZ	-- Niagara	Niagara	Aesthetics	On-site Wastewater Systems
	Niagara River Main Stem		Tonawanda Creek to Lake Ontario	32-004	BERGHOLTZ CREEK	-- Niagara	Niagara	Priority Organics	** Land Disposal (landfills)
	Niagara River Main Stem		Tonawanda Creek to Lake Ontario	32-005	BLOODY RUN CREEK	-- Niagara	Niagara	Priority Organics	Land Disposal (landfills)
	Niagara River Main Stem		Tonawanda Creek to Lake Ontario	32-006	BLACK CREEK	-- Niagara	Niagara	Priority Organics	** Land Disposal (landfills)
	Niagara River Main Stem		Tonawanda Creek to Lake Ontario	32-008	CAYUGA CREEK	-- Niagara	Niagara	Priority Organics	** Land Disposal (landfills)
01-02	Tonawanda Creek	04120104.020	Upper Tonawanda Creek	19-002	LIT. TONAWANDA CK.	-- Genesee	Genesee	Silt (Sediment)	Streambank Erosion
	Tonawanda Creek		Upper Tonawanda Creek	19-003	TONAWANDA CREEK	-- Genesee	Genesee	Pathogens	** Agric. - Row Crops
	Tonawanda Creek		Upper Tonawanda Creek	19-005	TONAWANDA CREEK	-- Genesee	Genesee	Oxygen-Demanding Substances	** Agric. - Row Crops
	Tonawanda Creek		Upper Tonawanda Creek	61-005	TONAWANDA CREEK	-- Wyoming	Wyoming	Silt (Sediment)	Streambank Erosion
	Tonawanda Creek	04120104.030	Middle Tonawanda Creek	15-004	LEDGE CREEK	-- Erie	Erie	Pathogens	On-site Wastewater Systems
	Tonawanda Creek	04120104.040	Murder Creek	15-005	MURDER CREEK	-- Erie	Erie	Pathogens	On-site Wastewater Systems
	Tonawanda Creek	04120104.050	Tonawanda Creek	15-006	TONAWANDA CREEK	-- Erie	Erie	Silt (Sediment)	Streambank Erosion
	Tonawanda Creek		Tonawanda Creek	15-007	BELMAN CREEK	-- Erie	Erie	Pathogens	On-site Wastewater Systems
	Tonawanda Creek	04120104.070	Mud Creek to Ransom Creek	15-008	RANSOM CREEK	-- Erie	Erie	Oxygen-Demanding Substances	On-site Wastewater Systems

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-1

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LAKE ERIE - NIAGARA RIVER BASIN (01)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
01-02	Tonawanda Creek	04120104.080	Ransom Creek to Mouth	15-009	ELLCOTT CREEK	--	Erie	Pathogens	On-site Wastewater Systems
	Tonawanda Creek		Ransom Creek to Mouth	15-010	ELLCOTT CREEK	--	Erie	Thermal Changes	Hydrologic/Habitat Modification
	Tonawanda Creek		Ransom Creek to Mouth	15-011	DORSCH CREEK	--	Erie	Thermal Changes	Agric. - Riparian Veg. Removal
01-03	Buffalo River	04120103.050	Buffalo Creek	15-021	BUFFALO CREEK	--	Erie	Nutrients	Agric. - Row Crops
	Buffalo River		Buffalo Creek	15-022	BUFFALO CREEK	--	Erie	Thermal Changes	Agric. - Riparian Veg. Removal
	Buffalo River		Buffalo Creek	61-003	BUFFALO CREEK	--	Wyoming	Silt (Sediment)	Streambank Erosion
	Buffalo River	04120103.060	Cayuga Creek	15-023	CAYUGA CREEK	--	Erie	Nutrients	** On-site Wastewater Systems
	Buffalo River		Cayuga Creek	15-024	LITTLE BUFFALO CR	--	Erie	Silt (Sediment)	Streambank Erosion
	Buffalo River		Cayuga Creek	61-004	CAYUGA CREEK	--	Wyoming	Silt (Sediment)	Agric. - Row Crops
	Buffalo River	04120103.070	Cazenovia Creek;	15-025	CAZENOVIA CREEK	--	Erie	Silt (Sediment)	Streambank Erosion
			Buffalo Rr to Peace Bridge						
	Buffalo River		Cazenovia Creek;	15-026	BUFFALO RIVER	--	Erie	Priority Organics	** Urban Runoff
			Buffalo Rr to Peace Bridge						
01-04	Eastern Lake Erie	04120102.010	Upper Cattaraugus Creek	05-002	UPPER CATTARAUGUS	--	Cattaraugus	Thermal Changes	Streambank Erosion
	Eastern Lake Erie		Upper Cattaraugus Creek	05-003	ELTON CREEK	--	Cattaraugus	Thermal Changes	Streambank Erosion
	Eastern Lake Erie		Upper Cattaraugus Creek	05-014	LIME LAKE	--	Cattaraugus	Nutrients	On-site Wastewater Systems
	Eastern Lake Erie		Upper Cattaraugus Creek	15-027	CATTARAUGUS CREEK	--	Erie	Silt (Sediment)	Streambank Erosion
	Eastern Lake Erie		Upper Cattaraugus Creek	15-028	SPRING BROOK	--	Erie	Thermal Changes	Agric. - Overgrazing
	Eastern Lake Erie		Upper Cattaraugus Creek	61-001	JAVA LAKE	--	Wyoming	Nutrients	On-site Wastewater Systems
	Eastern Lake Erie		Upper Cattaraugus Creek	61-002	JAVA LAKE OUTLET	--	Wyoming	Thermal Changes	** On-site Wastewater Systems

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APPENDIX A-1

SUBJECT TO AGENCY VERIFICATION PRIORITY CANDIDATES FOR WATERSHED PLANNING LAKE ERIE - NIAGARA RIVER BASIN (01)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
Eastern Lake Erie	04120102.030	Lower Cattaraugus Creek	Lower Cattaraugus Creek	05-001	S. BRANCH CAIT CR	--	Cattaraugus	Silt (Sediment)	Streambank Erosion
Eastern Lake Erie		Lower Cattaraugus Creek	Lower Cattaraugus Creek	15-029	DERBY BROOK	--	Erie	Silt (Sediment)	Streambank Destabilization/Modification
Eastern Lake Erie		Lower Cattaraugus Creek	Lower Cattaraugus Creek	15-030	CATTARAUGUS CREEK	--	Erie	Silt (Sediment)	Streambank Erosion
Eastern Lake Erie		Lower Cattaraugus Creek	Lower Cattaraugus Creek	15-031	CLEAR CREEK	--	Erie	Silt (Sediment)	Streambank Erosion
Eastern Lake Erie		Lower Cattaraugus Creek	Lower Cattaraugus Creek	15-033	SPOONER BROOK	--	Erie	Silt (Sediment)	Streambank Erosion
Eastern Lake Erie	04120103.010	Cattaraugus Creek to Eighteenmile Creek	Cattaraugus Creek to Eighteenmile Creek	15-013	DELAWARE CREEK	--	Erie	Unknown Toxic	Junkyard
Eastern Lake Erie		Cattaraugus Creek to Eighteenmile Creek	Cattaraugus Creek to Eighteenmile Creek	15-014	WIDE REACH AQUITE GW	GW	Erie	Priority Organics	Oil spreading on roads; PCB's
Eastern Lake Erie		Cattaraugus Creek to Eighteenmile Creek	Cattaraugus Creek to Eighteenmile Creek	15-015	BIG SISTER CREEK	--	Erie	Nutrients	** Storage/App of Deicing Material
Eastern Lake Erie		Cattaraugus Creek to Eighteenmile Creek	Cattaraugus Creek to Eighteenmile Creek	15-016	BIG SISTER CREEK	--	Erie	Unidentified	Urban Runoff
Eastern Lake Erie		Cattaraugus Creek to Eighteenmile Creek	Cattaraugus Creek to Eighteenmile Creek	15-036	PIKE CREEK	--	Erie	Pathogens	On-site Wastewater Systems
Eastern Lake Erie	04120103.020	Eighteenmile Creek	Eighteenmile Creek	15-017	EIGHTEEN MILE CRK	--	Erie	Silt (Sediment)	Streambank Erosion
Eastern Lake Erie		Eighteenmile Creek	Eighteenmile Creek	15-018	EIGHTEEN MILE CRK	--	Erie	Silt (Sediment)	Streambank Erosion
Eastern Lake Erie		Eighteenmile Creek	Eighteenmile Creek	15-034	EIGHTEEN MILE CRK	--	Erie	Silt (Sediment)	Urban Runoff
Eastern Lake Erie	04120103.030	Eighteenmile Creek to Smoke Creek	Eighteenmile Creek to Smoke Creek	15-019	RUSH CREEK	--	Erie	Oxygen-Demanding Substances	** On-site Wastewater Systems
Eastern Lake Erie	04120103.040	Smoke Creek	Smoke Creek	15-020	SMOKE CREEK	--	Erie	Metals	** On-site Wastewater Systems
01-05 Western Lake Erie	04120101.110	State Line of Chautauqua Creek	State Line of Chautauqua Creek	07-001	GAGE GULF	--	Chautauqua	Silt (Sediment)	Streambank Erosion
Western Lake Erie		State Line of Chautauqua Creek	State Line of Chautauqua Creek	07-015	TWENTY MILE CREEK	--	Chautauqua	Silt (Sediment)	Streambank Erosion

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-1

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LAKE ERIE - NIAGARA RIVER BASIN (01)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
01-05	Western Lake Erie	04120101.120	Chautauqua Creek to Little Canadaway Creek	07-002	CHAUTAUQUA CREEK	--	Chautauqua	Silt (Sediment)	Streambank Erosion
	Western Lake Erie	04120101.130	Little Canadaway Creek to Silver Creek	07-003	CANADAWAY CREEK	--	Chautauqua	Silt (Sediment)	Streambank Erosion
	Western Lake Erie		Little Canadaway Creek to Silver Creek	07-019	CROOKED BROOK	--	Chautauqua	Aesthetics	On-site Wastewater Systems
	Western Lake Erie		Little Canadaway Creek to Silver Creek	07-020	HYDE CREEK	--	Chautauqua	Oil & Grease	Chemical Leaks and Spills
	Western Lake Erie	04120101.140	Silver Creek to Cattaraugus Creek	07-004	SILVER&WALNUT CKS	--	Chautauqua	Silt (Sediment)	Streambank Erosion

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*GW = Groundwater; ** Nonpoint source identified is not primary water quality
problem - it is either a point source, atmo. dep. or contaminated sediments

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APPENDIX A-2

PRIORITY CANDIDATES FOR WATERSHED PLANNING ALLEGANY RIVER RIVER BASIN (02)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
02-01	Allegany River Main Stem	05010001.050	State Line to Dodge Creek	02-005	LITTLE GENESEE CK	--	Allegany	Nutrients	** On-site Wastewater Systems
	Allegany River Main Stem	05010001.060	Direct Pennsylvania Drainage	07-012	LOWER STILLWATER	--	Chautauque	Thermal Changes	Agric. - Riparian Veg. Removal
	Allegany River Main Stem	05010001.070	Dodge Creek	02-004	DODGE CREEK	--	Allegany	Silt (Sediment)	Streambank Erosion
	Allegany River Main Stem	05010001.080	Haskell Creek	05-006	HASKELL CREEK	--	Cattaraugus	Thermal Changes	Agric. - Riparian Veg. Removal
	Allegany River Main Stem	05010001.100	Olean Creek (Cuba Lake)	02-001	CUBA LAKE	--	Allegany	Pathogens	On-site Wastewater Systems
	Allegany River Main Stem		Olean Creek (Cuba Lake)	05-004	OIL CREEK	--	Cattaraugus	Thermal Changes	Land Disposal (Landfills)
	Allegany River Main Stem		Olean Creek (Cuba Lake)	05-005	ISCHUA CREEK	--	Cattaraugus	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Allegany River Main Stem	05010001.110	State Line (Dodge Creek) to Fivemile Creek	05-013	OLEAN GROUNDWATER GW	GW	Cattaraugus	Priority Organics	Chemical Leaks and Spills
	Allegany River Main Stem	05010001.140	Fivemile Creek to Great Valley Creek	05-008	LOW - GREAT VALLEY	--	Cattaraugus	Priority Organics	Resource Extraction/development
	Allegany River Main Stem	05010001.150	Great Valley Creek	05-009	UP - GREAT VALLEY	--	Cattaraugus	Silt (Sediment)	Agric. - Row Crops
	Allegany River Main Stem	05010001.160	Little Valley Creek	05-010	LITTLE VALLEY CRK	--	Cattaraugus	Thermal Changes	Agric. - Row Crops
	Allegany River Main Stem	05010001.180	Cold Spring Creek	05-011	COLD SPRING CREEK	--	Cattaraugus	Thermal Changes	Agric. - Row Crops
	Allegany River Main Stem	05010001.190	Great Valley Creek to Quaker Run	05-007	ALLEGANY TRIBS	--	Cattaraugus	Silt (Sediment)	Silviculture
02-02	Conewango Creek Sub-basin	05010001.270	Brokenstraw Creek	07-005	BROKEN STRAW	--	Chautauque	Thermal Changes	Streambank Erosion
	Conewango Creek Sub-basin	05010002.010	Upper Conewango Creek	05-012	UPPER CONEWANGO	--	Cattaraugus	Silt (Sediment)	Agric. - Row Crops
	Conewango Creek Sub-basin		Upper Conewango Creek	07-016	UPPER CONEWANGO C	--	Chautauque	Silt (Sediment)	Dredging
	Conewango Creek Sub-basin	05010002.020	Chautauque Lake - Chadakoin River	07-006	CHAUTAUQUE LAKE	--	Chautauque	Nutrients	Agric. - Other
	Conewango Creek		Chautauque Lake -	07-007	CHADAKOIN RIVER	--	Chautauque	Thermal Changes	** Urban Runoff

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-2
PRIORITY CANDIDATES FOR WATERSHED PLANNING
ALLEGANY RIVER RIVER BASIN (02)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
	Sub-basin		Chadakoin River						
	Conewango Creek		Chautauqua Lake	07-017	CHAUTAUQUA LK US	--	Chautauqua	Silt (Sediment)	Streambank Erosion
	Sub-basin		Chadakoin River						
	Conewango Creek	05010002.030	Cassadaga Creek	07-008	MILL CREEK	--	Chautauqua	Water Level or Flow	Streambank Erosion
	Sub-basin		Cassadaga Creek						
	Conewango Creek		Cassadaga Creek	07-009	CASSADAGA LAKE	--	Chautauqua	Nutrients	On-site Wastewater Systems
	Sub-basin		Cassadaga Creek						
	Conewango Creek		Cassadaga Creek	07-010	CASSADAGA CREEK	--	Chautauqua	Nutrients	Streambank Erosion
	Sub-basin		Cassadaga Creek						
	Conewango Creek		Cassadaga Creek	07-011	BEAR LAKE	--	Chautauqua	Nutrients	On-site Wastewater Systems
	Sub-basin		Lower Conewango Creek						
	Conewango Creek	05010002.040	Lower Conewango Creek	07-018	LOWER CONEWANGO C	--	Chautauqua	Silt (Sediment)	Streambank Erosion
	Sub-basin		French Creek						
	Conewango Creek	05010004.010	French Creek	07-013	FRENCH CREEK	--	Chautauqua	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Sub-basin		French Creek						
	Conewango Creek		French Creek	07-014	FINLEY LAKE	--	Chautauqua	Nutrients	Waterfowl
	Sub-basin								

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-3

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LAKE ONTARIO BASIN (03)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
03-01	Lake Ontario West	04130001.020	Twelvemile Creek	32-002	TWELVE MILE CREEK	--	Niagara	Oxygen-Demanding Substances	Hydrologic/Habitat Modification
	Lake Ontario West	04130001.030	Twelvemile Creek to Eighteenmile Creek	32-007	BOND LAKE	--	Niagara	Nutrients	Agric. - Row Crops
	Lake Ontario West	04130001.040	Eighteenmile Creek	32-003	EIGHTEEN MILE CK	--	Niagara	Metals	** Agric. - Row Crops
	Lake Ontario West	04130001.060	Johnson Creek	32-011	JEDDO CREEK TRIB	--	Niagara	Pesticides	Land Disposal (landfills)
	Lake Ontario West		Johnson Creek	32-012	LAKE ONTARIO	--	Niagara	Priority Organics	** Land Disposal (landfills)
	Lake Ontario West		Johnson Creek	37-004	JOHNSON CREEK	--	Orleans	Silt (Sediment)	Agric. - Barnyard Runoff
	Lake Ontario West		Johnson Creek	37-005	LAKEWOOD VILL. POND	--	Orleans	Unknown Toxic	Unknown
	Lake Ontario West	04130001.070	Oak Orchard Creek	37-001	OAK ORCHARD CREEK	--	Orleans	Pathogens	On-site Wastewater Systems
	Lake Ontario West		Oak Orchard Creek	37-002	OAK ORCHARD CREEK	--	Orleans	Nutrients	Agric. - Barnyard Runoff
	Lake Ontario West		Oak Orchard Creek	37-006	NY'S BARGE CANAL	--	Orleans	Unknown Toxic	Land Disposal (landfills)
	Lake Ontario West		Oak Orchard Creek	37-007	OAK ORCHARD CREEK	--	Orleans	Nutrients	Agric. - Truck Farm
	Lake Ontario West	04130001.080	Oak Orchard Creek to Sandy Creek	37-003	SANDY CREEK	--	Orleans	Unknown Toxic	Land Disposal (landfills)
	Lake Ontario West	04130001.090	Sandy Creek to Braddocks Bay	28-001	BRADDOCK BAY	--	Monroe	Silt (Sediment)	Land Clearing/Development
03-02	Lake Ontario Central	04140101.030	Fourmile Creek to Salmon Creek at Pultneyville, NY	28-010	FOUR MILE CREEK	--	Monroe	Unknown Toxic	Land Disposal (landfills)
	Lake Ontario Central		Fourmile Creek to Salmon Creek at Pultneyville, NY	59-013	MILL CREEK AQUIFER GW	GW	Wayne	Unknown Toxic	Land Disposal (landfills)
	Lake Ontario Central	04140101.040	Salmon Creek at Pultneyville, NY to Sodus Point	59-014	MINK CREEK	--	Wayne	Nutrients	Agric. - Other
	Lake Ontario Central	04140101.050	Sodus Creek (Sodus Bay)	59-002	SODUS CREEK	--	Wayne	Nutrients	Agric. - Fertilizer Application
	Lake Ontario Central		Sodus Creek (Sodus Bay)	59-003	FIRST CREEK	--	Wayne	Silt (Sediment)	Unknown
	Lake Ontario Central		Sodus Creek (Sodus Bay)	59-004	SODUS BAY	--	Wayne	Nutrients	On-site Wastewater Systems

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-3 PRIORITY CANDIDATES FOR WATERSHED PLANNING LAKE ONTARIO BASIN (03)

BASIN CODE	MYS DEC SUBBASIN NAME	UNIT NUMBER	UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
03-02	Lake Ontario Central	04140101.060	Sodus Bay to Walcott Creek	59-005	MUDGE CREEK	--	Wayne	Nutrients	Agric. - Manure Spreading
	Lake Ontario Central		Sodus Bay to Walcott Creek	59-006	EAST BAY	--	Wayne	Nutrients	On-site Wastewater Systems
	Lake Ontario Central		Sodus Bay to Walcott Creek	59-007	PORT BAY	--	Wayne	Nutrients	Agric. - Manure Spreading
	Lake Ontario Central		Sodus Bay to Walcott Creek	59-008	WOLCOTT CREEK	--	Wayne	Nutrients	Agric. - Manure Spreading
	Lake Ontario Central	04140101.070	Walcott Creek to Ninemile Creek	06-001	LITTLE SODUS BAY	--	Cayuga	Nutrients	On-site Wastewater Systems
	Lake Ontario Central		Walcott Creek to Ninemile Creek	06-002	STERLING CREEK	--	Cayuga	Nutrients	Agric. - Row Crops
	Lake Ontario Central		Walcott Creek to Ninemile Creek	59-009	RED CREEK	--	Wayne	Nutrients	On-site Wastewater Systems
	Lake Ontario Central	04140101.080	Winnemile Creek to Oswego River	38-001	NINEMILE CREEK	--	Oswego	Nutrients	On-site Wastewater Systems
03-03	Lake Ontario East	04140102.010	Oswego River to Little Salmon River	38-003	WINE CREEK	--	Oswego	Unknown Toxic	Land Disposal (Landfills)
	Lake Ontario East	04140102.020	Salmon River to Grindstone Creek	38-010	LITTLE SALMON RIV	--	Oswego	Nutrients	Streambank Destabilization/Modification
	Lake Ontario East		Salmon River to Grindstone Creek	38-012	SAGE CREEK	--	Oswego	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Lake Ontario East	04140102.030	Grindstone Creek	38-011	GRINDSTONE CREEK	--	Oswego	Thermal Changes	Agric. - Riparian Veg. Removal
	Lake Ontario East	04140102.070	Salmon River to South Sandy Creek	23-001	JACOBS BROOK	--	Jefferson	Thermal Changes	Agric. - Livestock In Stream
	Lake Ontario East		Salmon River to South Sandy Creek	38-008	LITTLE SANDY CREE	--	Oswego	Thermal Changes	Agric. - Riparian Veg. Removal
	Lake Ontario East		Salmon River to South Sandy Creek	38-009	NORTH/SOUTH SANDY	--	Oswego	Nutrients	Streambank Destabilization/Modification
	Lake Ontario East	04140102.090	Sandy Creek	23-002	SANDY CREEK	--	Jefferson	Silt (Sediment)	Agric. - Row Crops
	Lake Ontario East		Sandy Creek	23-003	FLOODWOOD POND	--	Jefferson	Nutrients	Agric. - Row Crops

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-3

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LAKE ONTARIO BASIN (03)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
03-03	Lake Ontario East	04140102.100	Sandy Creek to Stoney Creek	23-004	CRYSTAL LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Lake Ontario East		Sandy Creek to Stoney Creek	23-005	BLACK POND	--	Jefferson	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Lake Ontario East		Sandy Creek to Stoney Creek	23-006	STONY CREEK	--	Jefferson	Silt (Sediment)	Agric. - Row Crops
	Lake Ontario East	04150102.040	Chaumont River	23-008	CHAUMONT RIVER	--	Jefferson	Nutrients	Agric. - Barnyard Runoff
	Lake Ontario East	04150102.050	Chaumont River to Cape Vincent	23-009	CHAUMONT BAY	--	Jefferson	Nutrients	On-site Wastewater Systems
	Lake Ontario East		Chaumont River to Cape Vincent	23-010	MUD BAY	--	Jefferson	Nutrients	On-site Wastewater Systems

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-4
PRIORITY CANDIDATES FOR WATERSHED PLANNING
GENESSEE RIVER BASIN (04)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
04-01	Rochester Area	04130003.100	Oatka Creek to Mouth	28-008	GENESSEE RIVER	--	Monroe	Silt (Sediment)	Flow Regulation/Modification
	Rochester Area	04140101.010	Allen Creek	28-014	ALLEN CREEK	--	Monroe	Nutrients	Urban Runoff
	Rochester Area	04140101.020	Genessee River to Fourmile Creek	28-011	SHIPBUILDERS CK	--	Monroe	Silt (Sediment)	Land Clearing/Development
	Rochester Area		Genessee River to Fourmile Creek	28-012	MILL CREEK	--	Monroe	Priority Organics	Land Disposal (Landfills)
	Rochester Area		Genessee River to Fourmile Creek	28-013	THOMAS CREEK	--	Monroe	Silt (Sediment)	Land Clearing/Development
	Rochester Area		Genessee River to Fourmile Creek	28-015	IRONDEQUOIT BAY	--	Monroe	Nutrients	Urban Runoff
	Rochester Area		Genessee River to Fourmile Creek	28-016	IRONDEQUOIT CREEK	--	Monroe	Silt (Sediment)	Land Clearing/Development
	Rochester Area		Genessee River to Fourmile Creek	28-017	LAKE ONTARIO SHRE	--	Monroe	Pathogens	** Urban Runoff
	Rochester Area		Genessee River to Fourmile Creek	28-018	NYS BARGE CANAL	--	Monroe	Water Level or Flow	Flow Regulation/Modification
04-02	Mt. Morris to Barge Canal	04130003.010	Beards Creek	26-009	LITTLE BEARDS CK	--	Livingston	Silt (Sediment)	Agric. - Row Crops
	Mt. Morris to Barge Canal		Beards Creek	61-007	LAKE LAGRANGE	--	Wyoming	Nutrients	On-site Wastewater Systems
	Mt. Morris to Barge Canal	04130003.020	Conesus Creek	26-005	CONESUS LAKE	--	Livingston	Nutrients	On-site Wastewater Systems
	Mt. Morris to Barge Canal	04130003.030	Upper Honeoye Creek	35-001	HONEOYE LAKE	--	Ontario	Nutrients	Nutrient Enriched Sediments
	Mt. Morris to Barge Canal	04130003.040	Middle Honeoye Creek	26-006	HEMLOCK LAKE	--	Livingston	Silt (Sediment)	Flow Regulation/Modification
	Mt. Morris to Barge Canal		Middle Honeoye Creek	26-007	LOWER HONEOYE CK	--	Livingston	Silt (Sediment)	Streambank Erosion
	Mt. Morris to Barge Canal		Middle Honeoye Creek	26-008	HEMLOCK OUTLET	--	Livingston	Silt (Sediment)	Streambank Erosion
	Mt. Morris to Barge Canal		Middle Honeoye Creek	35-002	LOWER HONEOYE CK	--	Ontario	Silt (Sediment)	Agric. - Row Crops

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-4 PRIORITY CANDIDATES FOR WATERSHED PLANNING GENESEE RIVER BASIN (04)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER		UNIT NAME	SEGMENT ID	SEGMENT			SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY	
		04130003.040	04130003.050			HEMLOCK LAKE	HEMLOCK LK. OUTLY	CANADICE LAKE				Flow Regulation/Modification	Flow Regulation/Modification
04-02	Mt. Morris to Barge Canal			Middle Honeoye Creek	35-003				--	Ontario	Silt (Sediment)		
	Mt. Morris to Barge Canal			Middle Honeoye Creek	35-004				--	Ontario	Water Level or Flow		Flow Regulation/Modification
	Mt. Morris to Barge Canal			Middle Honeoye Creek	35-005				--	Ontario	Priority Organics	** Streambank Erosion	
	Mt. Morris to Barge Canal			Lower Honeoye Creek	28-004				--	Monroe	Silt (Sediment)		Urban Runoff
	Mt. Morris to Barge Canal			Canaseraga Creek to Oatka Creek	26-003				--	Livingston	Silt (Sediment)		Flow Regulation/Modification
	Mt. Morris to Barge Canal			Canaseraga Creek to Oatka Creek	26-010				--	Livingston	Ammonia		Agric. - Other
	Mt. Morris to Barge Canal			Canaseraga Creek to Oatka Creek	28-005				--	Monroe	Unknown Toxic		Land Disposal (Landfills)
	Mt. Morris to Barge Canal			Oatka Creek	19-006				--	Genesee	Nutrients		Nutrient Enriched Sediments
	Mt. Morris to Barge Canal			Oatka Creek	26-011				--	Livingston	Unknown Toxic		Chemical Leaks and Spills
	Mt. Morris to Barge Canal			Oatka Creek	28-002				--	Monroe	Oxygen-Demanding Substances	** Waterfowl	
	Mt. Morris to Barge Canal			Oatka Creek	28-006				--	Monroe	Silt (Sediment)		Agric. - Row Crops
	Mt. Morris to Barge Canal			Oatka Creek	61-006				--	Wyoming	Silt (Sediment)	** Agric. - Row Crops	
	Mt. Morris to Barge Canal			Black Creek	19-001				--	Genesee	Silt (Sediment)		Agric. - Manure Spreading
	Mt. Morris to Barge Canal			Black Creek	19-004				--	Genesee	Silt (Sediment)		Agric. - Row Crops
	Mt. Morris to Barge Canal			Black Creek	28-007				--	Monroe	Nutrients		Agric. - Row Crops
	Mt. Morris to Barge Canal			Red Creek	28-003				--	Monroe	Silt (Sediment)		Urban Runoff

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-4 PRIORITY CANDIDATES FOR WATERSHED PLANNING GENESEE RIVER BASIN (04)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
04-03	Pa. Border to Mt. Morris	04130002.060	State Line to Dyke Creek	02-006	GENESEE RIVER	--	Allegany	Priority Organics	Land Disposal (landfills)
	Pa. Border to Mt. Morris	04130002.070	Dyke Creek	02-007	DYKE CREEK	--	Allegany	Pathogens	On-site Wastewater Systems
	Pa. Border to Mt. Morris	04130002.080	Van Campen Creek	02-011	VAN CAMPEN CREEK	--	Allegany	Oxygen-Demanding Substances	** Land Disposal (landfills)
	Pa. Border to Mt. Morris	04130002.090	Dyke Creek to Angelica Creek	02-008	VAN DER MARK CK	--	Allegany	Thermal Changes	Agric. - Overgrazing
	Pa. Border to Mt. Morris		Dyke Creek to Angelica Creek	02-009	KNIGHT CREEK	--	Allegany	Priority Organics	Resource Extraction/development
	Pa. Border to Mt. Morris		Dyke Creek to Angelica Creek	02-010	GENESEE RIVER	--	Allegany	Silt (Sediment)	** Flow Regulation/Modification
	Pa. Border to Mt. Morris	04130002.110	Angelica Creek	02-012	ANGELICA CK AQUIF GW	GW	Allegany	Pathogens	On-site Wastewater Systems
	Pa. Border to Mt. Morris	04130002.130	Caneadea Creek	02-002	RUSHFORD LAKE	--	Allegany	Pathogens	On-site Wastewater Systems
	Pa. Border to Mt. Morris		Caneadea Creek	02-003	CANEADEA CREEK	--	Allegany	Thermal Changes	Agric. - Riparian Veg. Removal
	Pa. Border to Mt. Morris		Caneadea Creek	02-015	RUSH CREEK	--	Allegany	Silt (Sediment)	Agric. - Other
	Pa. Border to Mt. Morris	04130002.150	Viscoy Creek	61-011	WISCOY CREEK	--	Wyoming	Thermal Changes	Agric. - Row Crops
	Pa. Border to Mt. Morris		Viscoy Creek	61-012	EAST KOY CREEK	--	Wyoming	Thermal Changes	Agric. - Row Crops
	Pa. Border to Mt. Morris		Viscoy Creek	61-013	TRIB#4 - EAST KOY	--	Wyoming	Oxygen-Demanding Substances	Agric. - Other
	Pa. Border to Mt. Morris	04130002.160	Viscoy Creek to Canaseraga Creek	26-002	UPPER GENESEE RIV	--	Livingston	Silt (Sediment)	Streambank Erosion
	Pa. Border to Mt. Morris		Viscoy Creek to Canaseraga Creek	61-008	SILVER LAKE	--	Wyoming	Nutrients	Agric. - Row Crops
	Pa. Border to Mt. Morris		Viscoy Creek to Canaseraga Creek	61-009	WOLF CREEK	--	Wyoming	Nutrients	On-site Wastewater Systems
	Pa. Border to Mt. Morris		Viscoy Creek to Canaseraga Creek	61-010	GENESEE RIVER	--	Wyoming	Silt (Sediment)	Streambank Erosion
04-04	Canaseraga Creek	04130002.170	Canaseraga Creek	02-014	CANASERAGA CREEK	--	Allegany	Pathogens	On-site Wastewater Systems
	Canaseraga Creek		Canaseraga Creek	26-004	CANASERAGA CREEK	--	Livingston	Silt (Sediment)	Streambank Erosion

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-5

PRIORITY CANDIDATES FOR WATERSHED PLANNING
CHEMUNG RIVER BASIN (05)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
05-01	Chemung River	02050105.130	Cohocton River to Post Creek	08-001	POST CREEK	--	Chemung	Aesthetics	Land Disposal (landfills)
	Chemung River		Cohocton River to Post Creek	49-004	POST CREEK	--	Schuyler	Silt (Sediment)	Streambank Erosion
	Chemung River		Cohocton River to Post Creek	51-010	CORNING WELLS	GW	Steuben	Priority Organics	Chemical Leaks and Spills
	Chemung River	02050105.140	Post Creek to Sing Creek	08-006	HORSEHEADS AQUIFER	GW	Chemung	Priority Organics	Land Disposal (landfills)
	Chemung River	02050105.170	Hoffman Brook to Newtown Creek	08-005	NEWTOWN CREEK	--	Chemung	Thermal Changes	Streambank Erosion
	Chemung River		Hoffman Brook to Newtown Creek	08-007	TRIB-BEAVER BROOK	--	Chemung	Unknown	Unknown
	Chemung River	02050105.200	Seeley Creek	08-002	COLD BROOK CREEK	--	Chemung	Aesthetics	Dumping/Trash
	Chemung River		Seeley Creek	08-003	SOUTH CREEK	--	Chemung	Nutrients	** Agric. - Row Crops
	Chemung River		Seeley Creek	08-004	SEELEY CREEK	--	Chemung	Thermal Changes	Streambank
05-02	Cohocton River	02050105.020	Upper Cohoacton River	26-001	UPPER COHOCTON RI	--	Livingston	Silt (Sediment)	Destabilization/Modification
	Cohoacton River	02050105.030	Neil Creek	51-008	CASTLE CREEK	--	Steuben	Nutrients	Agric. - Row Crops
	Cohoacton River	02050105.070	Neil Creek to Campbell Creek	51-006	SMITH POND	--	Steuben	Nutrients	Agric. - Barnyard Runoff
	Cohoacton River		Neil Creek to Campbell Creek	51-007	GOFF CREEK	--	Steuben	Nutrients	On-site Wastewater Systems
	Cohoacton River	02050105.100	Mud Creek	49-003	LAMOKA LAKE	--	Schuyler	Nutrients	Agric. - Barnyard Runoff
	Cohoacton River		Mud Creek	49-005	WANETA LAKE	--	Schuyler	Nutrients	On-site Wastewater Systems
	Cohoacton River	02050105.110	Meads Creek	49-006	TOBEHANNA CREEK	--	Schuyler	Nutrients	On-site Wastewater Systems
	Cohoacton River		Meads Creek	49-007	MEADS CREEK	--	Schuyler	Silt (Sediment)	Agric. - Manure Spreading
	Cohoacton River	02050105.120	Lower Cohoacton River	49-008	CINNAMON LAKE	--	Schuyler	Silt (Sediment)	Streambank Erosion
	Cohoacton River		Lower Cohoacton River	51-002	COHOCTON RIVER	--	Steuben	Silt (Sediment)	Silviculture
	Cohoacton River		Lower Cohoacton River	51-003	COHOCTON RIVER	--	Steuben	Nutrients	Agric. - Row Crops
	Cohoacton River		Lower Cohoacton River	51-011	LAKE SALUBRIA	--	Steuben	Nutrients	Agric. - Barnyard Runoff
05-03	Canisteo River	02050104.030	Canacadea Creek	02-013	CANACADEA CREEK	--	Allegany	Silt (Sediment)	On-site Wastewater Systems
	Canisteo River		Canacadea Creek	51-005	ALMOND POND	--	Steuben	Silt (Sediment)	Urban Runoff
									Flow Regulation/Modification

Page A-5.1 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

*GV = Groundwater; ** Nonpoint source identified is not primary water quality problem - it is either a point source, atmo. dep. or contaminated sediments.

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-5
PRIORITY CANDIDATES FOR WATERSHED PLANNING
CHEMUNG RIVER BASIN (05)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
05-03	Canisteo River	02050104.170	Lower Tioga River	51-009	TIOGA RIVER	--	Steuben	Unknown	Unknown

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APPENDIX A-6

PRIORITY CANDIDATES FOR WATERSHED PLANNING SUSQUEHANNA RIVER BASIN (06)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC		SEGMENT ID	SEGMENT NAME	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY	
		UNIT NUMBER	UNIT NAME							
06-01	Upper Susquehanna Unadilla River	02050101.010	Oaks Creek	39-002	CANADARAGO LAKE	--	Otsego	Nutrients	Agric. - Row Crops	
	Upper Susquehanna Unadilla River	02050101.020	Cherry Valley Creek	39-008	CHERRY VALLEY CK	--	Otsego	Nutrients	On-site Wastewater Systems	
	Upper Susquehanna Unadilla River	02050101.030	Upper Susquehanna River	22-003	YOUNG LAKE	--	Herkimer	Nutrients	Agric. - Row Crops	
	Upper Susquehanna Unadilla River		Upper Susquehanna River	22-004	WEAVER LAKE	--	Herkimer	Nutrients	Agric. - Row Crops	
	Upper Susquehanna Unadilla River		Upper Susquehanna River	22-005	CRIPPLE CREEK	--	Herkimer	Nutrients	Agric. - Row Crops	
	Upper Susquehanna Unadilla River		Upper Susquehanna River	39-001	GOODYEAR LAKE	--	Otsego	Nutrients	On-site Wastewater Systems	
	Upper Susquehanna Unadilla River		Upper Susquehanna River	39-007	OTSEGO LAKE	--	Otsego	Nutrients	On-site Wastewater Systems	
	Upper Susquehanna Unadilla River	02050101.040	Fly Creek	39-005	ELK CREEK	--	Otsego	Silt (Sediment)	Streambank Destabilization/Modification	
	Upper Susquehanna Unadilla River	02050101.050	Schenevus River	39-004	WHARTON CREEK	--	Otsego	Silt (Sediment)	Agric. - Manure Spreading	
	Upper Susquehanna Unadilla River	02050101.060	Charlotte Creek	48-011	CHARLOTTE CREEK	--	Schoharie	Silt (Sediment)	Land Disposal (Landfills)	
	Upper Susquehanna Unadilla River	02050101.070	Otego Creek	39-003	OTEGO CREEK	--	Otsego	Nutrients	Storm Sewers	
	Upper Susquehanna Unadilla River	02050101.090	Ouleout Creek	13-005	EAST SIDNEY LAKE	--	Delaware	Nutrients	Agric. - Barnyard Runoff	
	Upper Susquehanna Unadilla River		Ouleout Creek	13-013	MERIDITH SQ. AQFR	GW	Delaware	Nutrients	Agric. - Manure Spreading	
	Upper Susquehanna Unadilla River	02050101.110	Carr's Creek	13-003	CARRS CREEK	--	Delaware	Priority Organics	** On-Site Wastewater Systems	
	Upper Susquehanna Unadilla River		Carr's Creek	13-011	SIDNEY CENTER AQF	GW	Delaware	Pathogens	On-site Wastewater Systems	
	Upper Susquehanna Unadilla River	02050101.120	Schenevus Creek to Unadilla River	39-006	SUSQUEHANNA RIVER	--	Otsego	Unknown Toxic	Unknown	

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-6

PRIORITY CANDIDATES FOR WATERSHED PLANNING
SUSQUEHANNA RIVER BASIN (06)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
06-01	Upper Susquehanna Unadilla River	02050101.140	Upper Unadilla River	27-013	UNADILLA RIVER	--	Madison	Silt (Sediment)	Agric. - Other
	Upper Susquehanna Unadilla River	02050101.150	Warton Creek	39-010	SUMMIT LAKE	--	Otsego	Nutrients	On-site Wastewater Systems
	Upper Susquehanna Unadilla River	02050101.170	Great Brook	09-011	CHENANGO LAKE	--	Chenango	Nutrients	On-site Wastewater Systems
	Upper Susquehanna Unadilla River	02050101.180	Lower Unadilla River	09-003	UNADILLA RIVER	--	Chenango	Aesthetics	On-site Wastewater Systems
	Upper Susquehanna Unadilla River		Lower Unadilla River	09-004	GUILFORD LAKE	--	Chenango	Nutrients	On-site Wastewater Systems
	Upper Susquehanna Unadilla River		Lower Unadilla River	39-009	SILVER LAKE	--	Otsego	Nutrients	On-site Wastewater Systems
	Upper Susquehanna Unadilla River	02050101.190	Big Brook - Masonville Creek	13-016	E.MASONVILLE POND	--	Delaware	Nutrients	On-site Wastewater Systems
	Upper Susquehanna Unadilla River	02050101.200	Kelsey Brook	09-001	BUMPS CREEK	--	Chenango	Aesthetics	Land Disposal (landfills)
	Upper Susquehanna Unadilla River		Kelsey Brook	09-002	AFTON LAKE	--	Chenango	Nutrients	On-site Wastewater Systems
	Upper Susquehanna Unadilla River	02050101.350	Pierce Creek & Bayless Creek	04-018	PIERCE CREEK	--	Broome	Silt (Sediment)	Land Clearing/Development
	Upper Susquehanna Unadilla River	02050101.370	State Line to Chenango River	04-006	PARK CREEK	--	Broome	Nutrients	On-site Wastewater Systems
	Upper Susquehanna Unadilla River		State Line to Chenango River	04-021	SUSQUEHANNA RIVER	--	Broome	Aesthetics..	** Urban Runoff
	Upper Susquehanna Unadilla River		State Line to Chenango River	04-023	KIRKWOOD WELLS	--	Broome	Priority Organics	Land Disposal (landfills)
06-02	Chenango-Tioughnioga Rivers	02050102.020	Upper Chenango River	09-012	NORWICH RESERVOIR	--	Chenango	Nutrients	On-site Wastewater Systems
	Chenango-Tioughnioga Rivers		Upper Chenango River	09-013	COLD BROOK	--	Chenango	Silt (Sediment)	Agric. - Improper Manure Storage
	Chenango-Tioughnioga Rivers		Upper Chenango River	09-014	FLY CREEK	--	Chenango	Nutrients	Agric. - Manure Spreading

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APPENDIX A-6

PRIORITY CANDIDATES FOR WATERSHED PLANNING SUSQUEHANNA RIVER BASIN (06)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
06-02	Chenango-Tioughnioga Rivers	02050102.020	Upper Chenango River	27-001	CORTON LAKE	--	Madison	Nutrients	On-site Wastewater Systems
	Chenango-Tioughnioga Rivers		Upper Chenango River	27-002	EATON RESERVOIR	--	Madison	Nutrients	On-site Wastewater Systems
	Chenango-Tioughnioga Rivers		Upper Chenango River	27-003	LAKE MORaine	--	Madison	Nutrients	On-site Wastewater Systems
	Chenango-Tioughnioga Rivers		Upper Chenango River	27-014	MORRISVILLE ADJUL. GW		Madison	Salts	Storage/App of Deicing Material
	Chenango-Tioughnioga Rivers	02050102.030	Canasawacta Creek	09-015	CANASAWACTA CREEK	--	Chenango	Silt (sediment)	Dredging
	Chenango-Tioughnioga Rivers		Canasawacta Creek	09-016	PLYMOUTH RESERVR.	--	Chenango	Nutrients	On-site Wastewater Systems
	Chenango-Tioughnioga Rivers	02050102.050	Middle Chenango River	09-005	NORTH POND	--	Chenango	Aesthetics	On-site Wastewater Systems
	Chenango-Tioughnioga Rivers		Middle Chenango River	09-006	EDDY BROOK	--	Chenango	Unknown Toxic	Chemical Leaks and Spills
	Chenango-Tioughnioga Rivers		Middle Chenango River	09-007	MILL BROOK	--	Chenango	Unknown Toxic	Land Disposal (landfills)
	Chenango-Tioughnioga Rivers		Middle Chenango River	09-008	CHENANGO RIVER	--	Chenango	Nutrients	** Agric. - Row Crops
	Chenango-Tioughnioga Rivers		Middle Chenango River	09-009	CHENANGO RIVER	--	Chenango	Aesthetics	On-site Wastewater Systems
	Chenango-Tioughnioga Rivers		Middle Chenango River	09-010	CHENANGO RIVER	--	Chenango	Aesthetics	** On-site Wastewater Systems
	Chenango-Tioughnioga Rivers	02050102.070	Otselic River	04-002	WHITNEY POINT RES	--	Broome	Silt (sediment)	Flow Regulation/Modification
	Chenango-Tioughnioga Rivers		Otselic River	04-003	OTSSELIC RIVER	--	Broome	Silt (sediment)	Roadbank Erosion
	Chenango-Tioughnioga Rivers		Otselic River	04-004	PAGE BROOK	--	Broome	Nutrients	Agric. - Row Crops
	Chenango-Tioughnioga Rivers		Otselic River	09-017	OTSSELIC RIVER	--	Chenango	Thermal Changes	Agric. - Riparian Veg. Removal

Page A-6.3 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-6
PRIORITY CANDIDATES FOR WATERSHED PLANNING
SUSQUEHANNA RIVER BASIN (06)

BASIN CODE	MYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
06-02	Chenango-Toughnioga Rivers	02050102.070	Otselic River	09-018	BRACKEL CREEK	--	Chenango	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Chenango-Toughnioga Rivers		Otselic River	12-009	OTSELIC RIVER	--	Cortland	Thermal Changes	Streambank Erosion
	Chenango-Toughnioga Rivers		Otselic River	27-012	OTSELIC RIVER	--	Madison	Thermal Changes	Agric. - Riparian Veg. Removal
	Chenango-Toughnioga Rivers	02050102.080	Upper Toughnioga River	12-001	UPPER LIT.YORK LK	--	Cortland	Nutrients	Agric. - Row Crops
	Chenango-Toughnioga Rivers		Upper Toughnioga River	12-002	TULLY LAKE	--	Cortland	Nutrients	Nutrient Enriched Sediments
	Chenango-Toughnioga Rivers		Upper Toughnioga River	12-003	SONG LAKE	--	Cortland	Nutrients	Agric. - Row Crops
	Chenango-Toughnioga Rivers		Upper Toughnioga River	12-004	E.BR.TIOUGHNIOGA	--	Cortland	Silt (Sediment)	Agric. - Other
	Chenango-Toughnioga Rivers		Upper Toughnioga River	12-008	HOMER PREBLE AQUF	--	Cortland	Nutrients	Urban Runoff
	Chenango-Toughnioga Rivers		Upper Toughnioga River	12-010	FACTORY BROOK	--	Cortland	Silt (Sediment)	Agric. - Row Crops
	Chenango-Toughnioga Rivers		Upper Toughnioga River	27-004	DERUYTER RESERV.	--	Madison	Nutrients	On-site Wastewater Systems
	Chenango-Toughnioga Rivers		Upper Toughnioga River	34-018	FABIUS BROOK	--	Onondaga	Thermal Changes	Agric. - Row Crops
	Chenango-Toughnioga Rivers	02050102.090	Dry Creek & Otter Creek	12-007	DRY/OTTER CK AQUF	GW	Cortland	Priority Organics	** Land Disposal (landfills)
	Chenango-Toughnioga Rivers	02050102.100	Lower Toughnioga River	04-017	DUDLEY CREEK	--	Broome	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Chenango-Toughnioga Rivers		Lower Toughnioga River	12-005	TROUT BROOK	--	Cortland	Unknown Toxic	Land Disposal (landfills)
	Chenango-Toughnioga Rivers		Lower Toughnioga River	12-006	LOW. TIOUGHNIOGA	--	Cortland	Oil & Grease	Unknown
	Chenango-Toughnioga Rivers	02050102.120	Page Brook	04-015	PAGE BROOK	--	Broome	Silt (Sediment)	Land Clearing/Development

Page A-6.4 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

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APPENDIX A-6

PRIORITY CANDIDATES FOR WATERSHED PLANNING
SUSQUEHANNA RIVER BASIN (06)

SUBJECT TO AGENCY VERIFICATION

BASIN	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC		SEGMENT ID	SEGMENT NAME	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY	
		UNIT NUMBER	UNIT NAME							
06-02	Chenango-Tioughnioga Rivers	02050102.130	Lower Chenango River	04-001	PORTER HOLLOW CK	--	Broome	Silt (Sediment)	Unknown	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-005	OSBORNE CREEK	--	Broome	Silt (Sediment)	Streambank Erosion	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-009	CHENANGO AQUIFER	GW	Broome	Unknown Toxic	Land Disposal (landfills)	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-010	CHENANGO RIVER	--	Broome	Metals	** Streambank Erosion	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-011	CHENANGO RIVER	--	Broome	Nutrients	Agric. - Row Crops	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-012	BALLYHACK CREEK	--	Broome	Silt (Sediment)	Land Clearing/Development	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-013	PHELPS CREEK	--	Broome	Silt (Sediment)	Land Clearing/Development	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-019	RANNEY WELL	--	Broome	Priority Organics	Chemical Leaks and Spills	
	Chenango-Tioughnioga Rivers		Lower Chenango River	04-022	CHENANGO FORKS HS	GW	Broome	Priority Organics	Land Disposal (landfills)	
	Lower Susquehanna	02050103.010	Chenango River to Westover	04-007	FINCH HOLLOW CRK	--	Broome	Nutrients	On-site Wastewater Systems	
	Lower Susquehanna		Chenango River to Westover	04-016	LITTLE CHOCONUT	--	Broome	Silt (Sediment)	Streambank Erosion	
	Lower Susquehanna		Chenango River to Westover	04-020	LITTLE CHOCONUT	--	Broome	Silt (Sediment)	Land Clearing/Development	
06-03	Lower Susquehanna	02050103.050	Twin Orchard to Tracey Creek	04-014	CHOCONUT CREEK	--	Broome	Silt (Sediment)	Urban Runoff	
	Lower Susquehanna	02050103.060	USGS Gaging Station to Broome-Tioga County Line	04-008	NANTICOKE CREEK	--	Broome	Silt (Sediment)	Streambank Erosion	
	Lower Susquehanna	02050103.090	Tracey Creek to Applachin Creek	54-009	APALACHIN CREEK	--	Tioga	Silt (Sediment)	Streambank Erosion	
	Lower Susquehanna	02050103.100	Broome-Tioga County	54-008	SUSQUEHANNA RIVER	--	Tioga	Silt (Sediment)	Land Clearing/Development	

Page A-6.5 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

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APPENDIX A-6
PRIORITY CANDIDATES FOR WATERSHED PLANNING
SUSQUEHANNA RIVER BASIN (06)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
Line to Owego Creek									
Lower Susquehanna			Broome-Tioga County	54-010	SUSQUEHANNA RIVER	--	Tioga	Nutrients	Agric. - Manure Spreading
Line to Owego Creek									
Lower Susquehanna		02050103.120	Catatunk Creek	54-001	CATATUNK CREEK	--	Tioga	Silt (Sediment)	Agric. - Barnyard Runoff
Lower Susquehanna			Catatunk Creek	54-002	TRIBS OF CATATUNK	--	Tioga	Silt (Sediment)	Agric. - Barnyard Runoff
Lower Susquehanna			Catatunk Creek	54-003	SULPHUR SPRINGS C	--	Tioga	Aesthetics	Land Disposal (Landfills)
Lower Susquehanna			Catatunk Creek	54-004	CANDOR AQUIFER	GW	Tioga	Salts	Storage/App of Deicing Material
Lower Susquehanna		02050103.140	Owego Creek	54-005	DOOLITTLE CREEK	--	Tioga	Silt (Sediment)	Streambank Erosion
Lower Susquehanna			Owego Creek	54-006	W. BR. OWEGO CRK.	--	Tioga	Silt (Sediment)	Agric. - Barnyard Runoff
Lower Susquehanna			Owego Creek	54-007	E. BR. OWEGO CRK.	--	Tioga	Aesthetics	On-site Wastewater Systems
Lower Susquehanna		02050103.200	Pipe Creek to State Line	54-011	SUSQUEHANNA RIVER	--	Tioga	Silt (Sediment)	Streambank Erosion
Lower Susquehanna		02050103.220	Cayuta Creek	49-002	CAYUTA LAKE	--	Schuyler	Nutrients	On-site Wastewater Systems
Lower Susquehanna			Cayuta Creek	49-009	JACKSON CREEK	--	Schuyler	Silt (Sediment)	Streambank Erosion

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APPENDIX A-7

PRIORITY CANDIDATES FOR WATERSHED PLANNING
SENECA-ONEIDA-OSWEGO RIVER BASIN (07)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
07-01	Lower Seneca Oswego Rivers	04140201.350	Skaneateles Ck to Onondaga Lk, Canal South	34-014	SENECA RIVER	--	Onondaga	Salts	On-site Wastewater Systems
	Lower Seneca Oswego Rivers		Skaneateles Ck to Onondaga Lk, Canal South	34-021	OSWEGO/SENECA RVR	--	Onondaga	Salts	** Urban Runoff
	Lower Seneca Oswego Rivers	04140201.390	Owasco Outlet to Onondaga Lk, Canal North	06-003	SENECA RIVER	--	Cayuga	Silt (Sediment)	Agric. - Row Crops
	Lower Seneca Oswego Rivers		Owasco Outlet to Onondaga Lk, Canal North	06-011	OTTER LAKE	--	Cayuga	Nutrients	Natural
	Lower Seneca Oswego Rivers		Owasco Outlet to Onondaga Lk, Canal North	06-012	CROSS LAKE	--	Cayuga	Oxygen-Demanding Substances	Agric. - Row Crops
	Lower Seneca Oswego Rivers		Owasco Outlet to Onondaga Lk, Canal North	34-010	CROSS LAKE	--	Onondaga	Nutrients	On-site Wastewater Systems
	Lower Seneca Oswego Rivers	04140202.150	Oneida River	38-007	ONEIDA RIVER	--	Oswego	Nutrients	Flow Regulation/Modification
	Lower Seneca Oswego Rivers	04140203.010	Oswego River	34-009	BEAVER LAKE	--	Onondaga	Nutrients	Waterfowl
	Lower Seneca Oswego Rivers		Oswego River	38-004	OSWEGO RIVER	--	Oswego	Metals	Streambank Destabilization/Modification
	Lower Seneca Oswego Rivers		Oswego River	38-006	LAKE NEATAHWANTA	--	Oswego	Nutrients	Agric. - Row Crops
07-02	Onondaga Lake	04140201.360	Ninemile Creek	34-003	OTISCO LAKE	--	Onondaga	Silt (Sediment)	Agric. - Row Crops
	Onondaga Lake		Ninemile Creek	34-015	NINE MILE CREEK	--	Onondaga	Salts	Land Disposal (landfills)
	Onondaga Lake		Ninemile Creek	34-016	GEDDES BROOK	--	Onondaga	Unknown Toxic	** Land Disposal (landfills)
	Onondaga Lake	04140201.380	Onondaga Lake to Oswego River	34-001	ONONDAGA LAKE	--	Onondaga	Pathogens	** Urban Runoff
	Onondaga Lake		Onondaga Lake to Oswego River	34-002	ONONDAGA CREEK	--	Onondaga	Salts	** Urban Runoff

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-7

PRIORITY CANDIDATES FOR WATERSHED PLANNING
SENECA-ONEIDA-OSWEGO RIVER BASIN (07)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
	Onondaga Lake		Oswego River						
	Onondaga Lake		Onondaga Lake to Oswego River	34-006	HARBOR BROOK	--	Onondaga	Silt (Sediment)	Land Clearing/Development
	Onondaga Lake		Onondaga Lake to Oswego River	34-011	HIAMATHA LAKE	--	Onondaga	Nutrients	Urban Runoff
	Onondaga Lake		Onondaga Lake to Oswego River	34-012	MEADOW BROOK	--	Onondaga	Salts	Urban Runoff
	Onondaga Lake		Onondaga Lake to Oswego River	34-013	FURNACE BROOK	--	Onondaga	Silt (Sediment)	Land Clearing/Development
	Onondaga Lake		Onondaga Lake to Oswego River	34-020	LEY CREEK & TRIBS	--	Onondaga	Aesthetics	** Land Disposal (landfills)
07-03	Oneida River	04140202.040	Woods Creek North of Barge Canal	33-002	WOOD CREEK	--	Oneida	Silt (Sediment)	Urban Runoff
	Oneida River		Woods Creek North of Barge Canal	33-004	CANADA CREEK	--	Oneida	Silt (Sediment)	Agric. - Row Crops
	Oneida River	04140202.070	Upper Oneida Creek	27-015	STOCKBRIDGE AQUIF GW		Madison	Unknown Toxic	Land Disposal (landfills)
	Oneida River		Upper Oneida Creek	33-003	SCONONDOA CREEK	--	Oneida	Silt (Sediment)	** Agric. - Row Crops
	Oneida River	04140202.080	S&E Shore Barge Canal to Cowaselon Creek	27-010	LOWER ONEIDA CRK.	--	Madison	Silt (Sediment)	Agric. - Truck Farm
	Oneida River	04140202.090	Cowaselon Creek	27-018	COWASELON CREEK	--	Madison	Oxygen-Demanding Substances	Agric. - Truck Farm
	Oneida River		Cowaselon Creek	27-019	CANASERAGA CREEK	--	Madison	Oxygen-Demanding Substances	Agric. - Truck Farm
	Oneida River	04140202.100	Limestone Creek	27-016	NEW WOODSTOCK SPR GW		Madison	Nutrients	Agric. - Manure Spreading
	Oneida River		Limestone Creek	34-005	JAMESVILLE RESERV	--	Onondaga	Silt (Sediment)	Agric. - Row Crops
	Oneida River		Limestone Creek	34-007	POOLS BROOK	--	Onondaga	Silt (Sediment)	Land Clearing/Development
	Oneida River		Limestone Creek	34-008	LIMESTONE CREEK	--	Onondaga	Silt (Sediment)	Resource Extraction/development
	Oneida River		Limestone Creek	34-017	BUTTERNUT CREEK	--	Onondaga	Oil & Grease	** Urban Runoff
	Oneida River	04140202.110	Upper Chittenango Creek	27-007	CAZENOVIA LAKE	--	Madison	Nutrients	On-site Wastewater Systems
	Oneida River		Upper Chittenango	27-008	TUSCARORA LAKE	--	Madison	Nutrients	On-site Wastewater Systems

Page A-7.2 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

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APPENDIX A-7

PRIORITY CANDIDATES FOR WATERSHED PLANNING
SENECA-ONEIDA-OSWEGO RIVER BASIN (07)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC ⁴ TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
	Oneida River		Creek Upper Chittenango Creek	27-011	CHITTENANGO CREEK	--	Madison	Silt (Sediment)	Land Clearing/Development
	Oneida River		Upper Chittenango Creek	27-017	CHITTENANGO CREEK	--	Madison	Nutrients	Agric. - Other
	Oneida River	04140202.120	South Shore Cowaselon Creek to Oneida River	27-009	ONEIDA LAKE	--	Madison	Nutrients	Agric. - Truck Farm
	Oneida River		South Shore Cowaselon Creek to Oneida River	34-019	CHITTENANGO CREEK	--	Onondaga	Nutrients	Agric. - Row Crops
	Oneida River	04140202.130	North Shore Fish Creek to Oneida River	38-002	ONEIDA LAKE	--	Oswego	Nutrients	On-site Wastewater Systems
	Lower Seneca Rivers	04140203.010	Oswego River	38-005	OX CREEK	--	Oswego	Silt (Sediment)	Unknown
07-04	Clyde River	04140201.160	Watershed Divide to Hathaway Brook, Canal South	35-010	CO.RTE.32 AQUIFER	GW	Ontario	Salts	Storage/App of Deicing Material
	Clyde River		Watershed Divide to Hathaway Brook, Canal South	35-011	SCHAFFER CREEK	--	Ontario	Oxygen-Demanding Substances	Agric. - Other
	Clyde River		Watershed Divide to Hathaway Brook, Canal South	35-012	GANARGUA CREEK	--	Ontario	Pesticides	Agric. - Pesticide Application
	Clyde River		Watershed Divide to Hathaway Brook, Canal South	59-020	GANARGUA CK	AQUIF	Wayne	Priority Organics	Chemical Leaks and Spills
	Clyde River	04140201.170	Hathaway Bk to Canandaigua Outlet, Canal South	59-015	MARBLETOWN CK	AQR	Wayne	Pathogens	Agric. - Barnyard Runoff
	Clyde River		Hathaway Bk to Canandaigua Outlet, Canal South	59-016	MILITARY RUN	--	Wayne	Silt (Sediment)	Agric. - Truck Farm
	Clyde River		Hathaway Bk to Canandaigua Outlet, Canal South	59-018	MARBLETOWN CREEK	--	Wayne	Pesticides	Agric. - Pesticide

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-7
PRIORITY CANDIDATES FOR WATERSHED PLANNING
SENECA-ONEIDA-OSWEGO RIVER BASIN (07)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG+ TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
			Canandaigua Outlet, Canal South						Application
	Clyde River	04140201.180	Maples Creek	35-006	GRIMES CK RACEWAY	--	Ontario	Nutrients	On-site Wastewater Systems
	Clyde River	04140201.190	Canandaigua Lake	35-009	CANANDAIGUA LAKE	--	Ontario	Pesticides	** Agric. - Row Crops
	Clyde River		Canandaigua Lake	62-002	CANANDAIGUA LAKE	--	Yates	Pesticides	** On-site Wastewater Systems
	Clyde River	04140201.210	Flint Creek	62-005	FLINT CREEK	--	Yates	Pesticides	Agric. - Pesticide
									Application
	Clyde River	04140201.220	Canandaigua Outlet	35-008	CANANDAIGUA OUTLET	--	Ontario	Nutrients	Urban Runoff
	Clyde River	04140201.230	Watershed Divide to Black Brook, Canal North	59-001	RED CREEK	--	Wayne	Nutrients	Agric. - Other
	Clyde River		Watershed Divide to Black Brook, Canal North	59-019	MACEDON CTR AQUFR GW	GW	Wayne	Unknown Toxic	Land Disposal (landfills)
	Clyde River	04140201.260	Canandaigua Outlet to Seneca River, Canal South	50-001	BLACK BROOK	--	Seneca	Unknown Toxic	Land Disposal (landfills)
	Clyde River		Canandaigua Outlet to Seneca River, Canal South	50-002	WHITE BROOK	--	Seneca	Nutrients	Agric. - Other
	Clyde River		Canandaigua Outlet to Seneca River, Canal South	50-007	DUBLIN BROOK	--	Seneca	Oxygen-Demanding Substances	Agric. - Barnyard Runoff
	Clyde River		Canandaigua Outlet to Seneca River, Canal South	59-011	CLYDE RIVER	--	Wayne	Oxygen-Demanding Substances	Agric. - Barnyard Runoff
	Clyde River	04140201.270	Crane Brook	06-004	CRANE BROOK	--	Cayuga	Nutrients	Urban Runoff
	Clyde River	04140201.280	Black Brook to Owasco Outlet, Canal North	06-010	DUCK LAKE	--	Cayuga	Nutrients	Natural
	Clyde River		Black Brook to Owasco Outlet, Canal North	59-010	SENECA RIVER	--	Wayne	Nutrients	Agric. - Pesticide
	Clyde River		Black Brook to Owasco Outlet, Canal North	59-012	CRUSOE CREEK	--	Wayne	Pesticides	Application
	Clyde River								Agric. - Pesticide

Page A-7.4 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

*GW = Groundwater; ** Nonpoint source identified is not primary water quality problem - it is either a point source, atmo. dep. or contaminated sediments.

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-7

PRIORITY CANDIDATES FOR WATERSHED PLANNING
SENECA-ONEIDA-OSWEGO RIVER BASIN (07)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
Clyde River									
			Outlet, Canal North				Wayne	Water Level or Flow	Application
			Black Brook to Owasco	59-017	NYS BARGE CANAL	--	Wayne	Flow Regulation/Modification	
Outlet, Canal North									
07-05	Upper Seneca River	04140201.010	Catharine Creek	08-008	CATHARINE CREEK	--	Chemung	Nutrients	On-site Wastewater Systems
	Upper Seneca River		Catharine Creek	49-014	CATLIN MILL SPRNG GW	--	Schuyler	Pathogens	On-site Wastewater Systems
	Upper Seneca River	04140201.020	Glen Creek	49-010	UPPER DAM LAKE	--	Schuyler	Silt (Sediment)	Streambank Erosion
	Upper Seneca River		Glen Creek	49-011	WHITES HOLOW LK	--	Schuyler	Silt (Sediment)	Streambank Erosion
	Upper Seneca River		Glen Creek	49-012	PUNCH BOWL LAKE	--	Schuyler	Silt (Sediment)	Streambank Erosion
	Upper Seneca River		Glen Creek	49-013	CATHARINE CREEK	--	Schuyler	Silt (Sediment)	Agric. - Row Crops
	Upper Seneca River	04140201.040	Keuka Lake Outlet	51-004	KEUKA LAKE	--	Steuben	Pesticides	** On-site Wastewater Systems
	Upper Seneca River		Keuka Lake Outlet	62-001	KEUKA LAKE	--	Yates	Pesticides	** On-site Wastewater Systems
	Upper Seneca River		Keuka Lake Outlet	62-004	SUGAR CREEK	--	Yates	Silt (Sediment)	Streambank Erosion
	Upper Seneca River		Keuka Lake Outlet	62-007	KEUKA LAKE OUTLET	--	Yates	Thermal Changes	Flow Regulation/Modification
	Upper Seneca River	04140201.050	Kashong Lake	62-003	KASHONG CREEK	--	Yates	Silt (Sediment)	Agric. - Row Crops
	Upper Seneca River	04140201.060	Seneca Lake	35-007	SENECA LAKE	--	Ontario	Salts	Storage/App of Deicing Materials
	Upper Seneca River		Seneca Lake	49-001	HECTOR FALLS CK	--	Schuyler	Unknown Toxic	Land Disposal (landfills)
	Upper Seneca River		Seneca Lake	49-016	SENECA LAKE	--	Schuyler	Salts	Storage/App of Deicing Materials
	Upper Seneca River		Seneca Lake	49-017	BREAKNECK CREEK	--	Schuyler	Metals	Land Disposal (landfills)
	Upper Seneca River		Seneca Lake	50-006	SENECA LAKE	--	Seneca	Salts	** Agric. - Row Crops
	Upper Seneca River		Seneca Lake	62-006	LONG PT RD AQUIFR GW	--	Yates	Unknown Toxic	Land Disposal (landfills)
	Upper Seneca River		Seneca Lake	62-008	SENECA LAKE	--	Yates	Salts	** Agric. - Row Crops
	Upper Seneca River	04140201.070	Seneca Lake to Cayuga Lake	50-003	CAYUGA/SENECA CNL	--	Seneca	Silt (Sediment)	On-site Wastewater Systems
	Upper Seneca River		Seneca Lake to Cayuga Lake	50-004	KENDIG CREEK	--	Seneca	Silt (Sediment)	Agric. - Row Crops
	Upper Seneca River	04140201.080	Cayuga Inlet	55-002	CAYUGA INLET	--	Tompkins	Silt (Sediment)	Streambank Erosion
	Upper Seneca River		Cayuga Inlet	55-003	SIXMILE CREEK	--	Tompkins	Silt (Sediment)	Streambank Erosion
	Upper Seneca River		Cayuga Inlet	55-004	CASCADILLA CREEK	--	Tompkins	Silt (Sediment)	Streambank Erosion
	Upper Seneca River	04140201.090	Virgil Creek	55-006	DRYDEN LAKE	--	Tompkins	Nutrients	Agric. - Fertilizer Application

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-7 PRIORITY CANDIDATES FOR WATERSHED PLANNING SENECA-ONEIDA-OSWEGO RIVER BASIN (07)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC		SEGMENT ID	SEGMENT NAME	SEG*	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY	
		UNIT NUMBER	UNIT NAME								
07-05	Upper Seneca River	04140201.100	Fall Creek	06-007	LAKE CUMO	--	Cayuga		Nutrients	On-site Wastewater Systems	
	Upper Seneca River		Fall Creek	55-005	FALL CREEK	--	Tompkins		Silt (Sediment)	Streambank Erosion	
	Upper Seneca River	04140201.120	Toughamock Creek	49-015	BOLTER CREEK	--	Schuyler		Silt (Sediment)	Resource	
07-06	Upper Seneca River	04140201.140	Yawger Creek	06-009	YAWGER CREEK	--	Cayuga		Silt (Sediment)	Extraction/development	
	Upper Seneca River	04140201.150	Cayuga Lake	06-008	CAYUGA LAKE	--	Cayuga		Nutrients	Agric. - Row Crops	
	Upper Seneca River		Cayuga Lake	50-005	CAYUGA LAKE	--	Seneca		Nutrients	On-site Wastewater Systems	
	Upper Seneca River		Cayuga Lake	55-001	CAYUGA LAKE	--	Tompkins		Silt (Sediment)	On-site Wastewater Systems	
	Owasco Creek	04140201.300	Owasco Inlet	06-005	OWASCO INLET	--	Cayuga		Silt (Sediment)	Streambank Erosion	
	Owasco Creek	04140201.310	Dutch Hollow Brook	06-006	DUTCH HOLLOW BRK.	--	Cayuga		Silt (Sediment)	Streambank Erosion	
	Owasco Creek	04140201.320	Owasco Lake	06-013	OWASCO LAKE	--	Cayuga		Silt (Sediment)	Dredging	
	Owasco Creek	04140201.330	Owasco Outlet to Skaneateles Ck., Canal South	06-014	OWASCO OUTLET	--	Cayuga		Nutrients	Streambank Erosion	
	Skaneateles Creek		Skaneateles Creek	12-011	GROUT BROOK	--	Cortland		Silt (Sediment)	Agric. - Row Crops	
	Skaneateles Creek	04140201.340	Skaneateles Creek	34-004	SHOTWELL BROOK	--	Onondaga		Silt (Sediment)	Agric. - Row Crops	

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APPENDIX A-8

PRIORITY CANDIDATES FOR WATERSHED PLANNING BLACK RIVER BASIN (08)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
08-01	Black River Main Stem	04150101.060	Middle Branch Moose River	21-022	4TH LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Black River Main Stem		Middle Branch Moose River	21-023	8TH LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Black River Main Stem		Middle Branch Moose River	21-024	7TH LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Black River Main Stem		Middle Branch Moose River	22-006	FULTON CHAIN LAKE	--	Herkimer	Pesticides	Unknown
	Black River Main Stem	04150101.070	Moose River	25-017	MOOSE RIVER	--	Lewis	Other Inorganics	Land Disposal (landfills)
	Black River Main Stem	04150101.080	Fisk Creek	25-010	BRANTINGHAM LAKE	--	Lewis	Nutrients	On-site Wastewater Systems
	Black River Main Stem	04150101.090	Otter Creek	25-015	OTTER CREEK	--	Lewis	Unknown Toxic	Land Disposal (landfills)
	Black River Main Stem	04150101.100	Upper Middle Black River	25-003	WHETSTONE CREEK	--	Lewis	Silt (Sediment)	Streambank Destabilization/Modification
	Black River Main Stem		Upper Middle Black River	25-016	FISH CREEK	--	Lewis	Other Inorganics	Land Disposal (landfills)
	Black River Main Stem	04150101.110	Independence River	25-009	CHASE LAKE	--	Lewis	Nutrients	On-site Wastewater Systems
	Black River Main Stem	04150101.150	Beaver River	25-005	BLACK CREEK	--	Lewis	Silt (Sediment)	Silviculture
	Black River Main Stem		Beaver River	25-006	EFFLEY FALLS RESE	--	Lewis	Water Level or Flow	Flow Regulation/Modification
	Black River Main Stem		Beaver River	25-007	SOFT MAPLE RESERV	--	Lewis	Nutrients	On-site Wastewater Systems
	Black River Main Stem		Beaver River	25-008	BEAVER LAKE	--	Lewis	Nutrients	On-site Wastewater Systems
	Black River Main Stem		Beaver River	25-012	BEAVER RIVER	--	Lewis	Pathogens	On-site Wastewater Systems
	Black River Main Stem	04150101.160	Middle Black River	25-001	BLACK RIVER	--	Lewis	Pesticides	On-site Wastewater Systems
	Black River Main Stem	04150101.170	Deer River	25-004	DEER RIVER	--	Lewis	Nutrients	Chemical Leaks and Spills
	Black River Main Stem	04150101.180	Lower Middle Black River	25-002	BLACK RIVER	--	Lewis	Nutrients	On-site Wastewater Systems
	Black River Main Stem	04150101.190	Lower Black River	23-007	BLACK RIVER	--	Jefferson	Oil & Grease	Agric. - Row Crops

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-9

PRIORITY CANDIDATES FOR WATERSHED PLANNING

ST. LAWRENCE RIVER BASIN (09)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
09-01	St. Lawrence River Main Stem	04150301.010	Cape Vincent to Otter Creek	23-011	BAYS ON ST. LAWRNC	--	Jefferson	Nutrients	On-site Wastewater Systems
	St. Lawrence River Main Stem		Cape Vincent to Otter Creek	23-022	LAKE OF THE ISLES	--	Jefferson	Nutrients	On-site Wastewater Systems
	St. Lawrence River Main Stem	04150301.020	Otter Creek to Chippewa Creek	23-021	GOOSE BAY	--	Jefferson	Nutrients	On-site Wastewater Systems
	St. Lawrence River Main Stem	04150301.050	Sucker Brook to Grass River	45-011	SUCKER BROOK	--	St. Lawrence	Silt (Sediment)	Agric. - Row Crops
09-02	St. Regis-Salmon-Chateaugay Rivers	04150306.040	Deer River	45-012	DEER RIVER	--	St. Lawrence	Nutrients	Agric. - Row Crops
	St. Regis-Salmon-Chateaugay Rivers	04150307.010	Pike Creek	17-011	PIKE CREEK	--	Franklin	Silt (Sediment)	Agric. - Riparian Veg. Removal
	St. Regis-Salmon-Chateaugay Rivers	04150307.030	Salmon River	17-005	SALMON RIVER	--	Franklin	Silt (Sediment)	Land Clearing/Development
	St. Regis-Salmon-Chateaugay Rivers		Salmon River	17-006	INDIAN/MT VIEW LK	--	Franklin	Nutrients	On-site Wastewater Systems
	St. Regis-Salmon-Chateaugay Rivers		Salmon River	17-007	MALONE SWIM. HOLE	--	Franklin	Pathogens	Agric. - Truck Farm
	St. Regis-Salmon-Chateaugay Rivers		Salmon River	17-008	MALONE AQUIFER	GW	Franklin	Pesticides	Agric. - Truck Farm
	St. Regis-Salmon-Chateaugay Rivers		Salmon River	17-010	LAKE TITUS	--	Franklin	Nutrients	On-site Wastewater Systems
	St. Regis-Salmon-Chateaugay Rivers	04150307.080	Chateaugay River	10-015	U. CHATEAUGAY LK.	--	Clinton	Water Level or Flow	Flow Regulation/Modification

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-9

PRIORITY CANDIDATES FOR WATERSHED PLANNING
ST. LAWRENCE RIVER BASIN (09)

WASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
09-02	St. Regis-Salmon-Chateaugay Rivers	04150307.080	Chateaugay River	17-004	BOARDMAN BROOK	--	Franklin	Aesthetics	Agric. - Manure Spreading
09-03	Raquette River	04150305.010	Raquette Lake	21-017	SHAW BROOK	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Raquette River		Raquette Lake	21-018	UTOWANA LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Raquette River		Raquette Lake	21-019	EAGLE LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Raquette River		Raquette Lake	21-020	BLUE MOUNTAIN LAK	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Raquette River		Raquette Lake	21-021	RAQUETTE LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Raquette River	04150305.030	Long Lake	21-015	LONG LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Raquette River	04150305.080	Tupper Lake	17-001	LITTLE WOLF POND	--	Franklin	Pathogens	Land Disposal (Landfills)
	Raquette River	04150305.130	Parkhurst Brook to Plumb Brook	45-004	NORWOOD LAKE	--	St. Lawrence	Water Level or Flow	Flow Regulation/Modification
09-04	Grass River	04150304.050	Harrison Creek	45-005	ELM CREEK	--	St. Lawrence	Oxygen-Demanding Substances	On-site Wastewater Systems
	Grass River	04150304.060	Little River	45-003	LITTLE RIVER	--	St. Lawrence	Silt (Sediment)	Agric. - Row Crops
	Grass River	04150304.080	Little River to Massena	45-006	GRASS RIVER-MIDDL	--	St. Lawrence	Nutrients	Agric. - Row Crops
09-05	Oswegatchie River	04150302.020	Little River	45-002	LITTLE RIVER	--	St. Lawrence	Oil & Grease	Chemical Leaks and Spills
	Oswegatchie River	04150302.040	Upper West Branch Oswegatchie River	25-014	LONG POND	--	Lewis	Metals	Unknown

Page A-9.2 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

*GW = Groundwater; ** Nonpoint source identified is not primary water quality
problem - it is either a point source, atmo. dep. or contaminated sediments.

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-9
PRIORITY CANDIDATES FOR WATERSHED PLANNING
ST. LAWRENCE RIVER BASIN (09)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
09-05	Oswegatchie River	04150302.060	Matoon Creek	45-016	MATTOON CREEK	--	St. Lawrence	Silt (Sediment)	Agric. - Row Crops
	Oswegatchie River	04150302.090	Upper Oswegatchie River	45-008	UPPER OSWEGATCHIE	--	St. Lawrence	Silt (Sediment)	Agric. - Row Crops
	Oswegatchie River		Upper Oswegatchie River	45-013	TURNPIKE CREEK	--	St. Lawrence	Metals	Resource Extraction/development
	Oswegatchie River	04150302.100	Gouverneur to Boland Creek	23-012	MOON LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Oswegatchie River		Gouverneur to Boland Creek	45-009	OSWEGATCHIE RIVER	--	St. Lawrence	Silt (Sediment)	Agric. - Row Crops
09-06	Oswegatchie River	04150302.110	Boland Creek	45-010	BOLAND CREEK	--	St. Lawrence	Nutrients	Agric. - Row Crops
	Indian River	04150303.010	Upper Indian River	25-011	LAKE BONAPARTE	--	Lewis	Nutrients	On-site Wastewater Systems
	Indian River		Upper Indian River	25-013	INDIAN LAKE	--	Lewis	Metals	Unknown
	Indian River	04150303.020	Upper Middle Indian River	23-024	INDIAN RIVER	--	Jefferson	Silt (Sediment)	Military Maneuvers
	Indian River	04150303.040	Lower Middle Indian River	23-023	INDIAN RIVER	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River	04150303.060	Lower Indian River	23-015	CRYSTAL LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Lower Indian River	23-016	SIX BERRY LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Lower Indian River	23-017	HILLSITE LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Lower Indian River	23-025	INDIAN RIVER	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River	04150303.080	Black Lake	23-013	CLEAR LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Black Lake	23-014	MUD LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Black Lake	23-018	LAKE OF THE WOODS	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Black Lake	23-019	GRASS LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Black Lake	23-020	BUTTERFIELD LAKE	--	Jefferson	Nutrients	On-site Wastewater Systems
	Indian River		Black Lake	45-001	BLACK LAKE	--	St. Lawrence	Nutrients	** On-site Wastewater Systems
	Indian River					--			

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-10

PRIORITY CANDIDATES FOR WATERSHED PLANNING LAKE CHAMPLAIN BASIN (10)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
10-01	Lake Champlain Proper	02010001.250	Mill Brook	16-027	MILL BROOK	--	Essex	Silt (Sediment)	Road sanding
	Lake Champlain Proper	02010001.260	Lake Champlain - Millbrook to Split Rock Point	16-010	NORTHWEST BAY	--	Essex	Pathogens	On-site Wastewater Systems
	Lake Champlain Proper	02010004.010	LK Champlain W. Shore; Split Rock Pt to Bouquet Rr	16-001	WHALLONS BAY	--	Essex	Pathogens	Waterfowl
	Lake Champlain Proper	02010004.040	Willsboro Bay - Lake Champlain	16-004	LAKE CHAMPLAIN	--	Essex	Priority Organics	Chemical Leaks and Spills
	Lake Champlain Proper		Willsboro Bay - Lake Champlain	16-005	WILLSBORO BAY	--	Essex	Nutrients	On-site Wastewater Systems
	Lake Champlain Proper	02010004.090	Salmon River	10-011	CLIFFHAVEN BEACH	--	Clinton	Ammonia	Storage/App of Deicing Material
	Lake Champlain Proper		Salmon River	10-023	SALMON RIVER	--	Clinton	Silt (Sediment)	Road sanding
	Lake Champlain Proper	02010006.050	Cumberland Bay - Lake Champlain	10-008	ALLENS BAY	--	Clinton	Pathogens	On-site Wastewater Systems
	Lake Champlain Proper		Cumberland Bay - Lake Champlain	10-009	DEAD CREEK	--	Clinton	Silt (Sediment)	Agric. - Manure Spreading
	Lake Champlain Proper		Cumberland Bay - Lake Champlain	10-027	LAKE CHAMPLAIN	--	Clinton	Priority Organics	Unknown
	Lake Champlain Proper		Cumberland Bay - Lake Champlain	10-031	COMFORT BAY	--	Clinton	Silt (Sediment)	Land Clearing/Development
	Lake Champlain Proper	02010006.090	Lower Great Chazy River	10-001	GREAT CHAZY RIVER	--	Clinton	Pathogens	Agric. - Manure Spreading
	Lake Champlain Proper		Lower Great Chazy River	10-002	GREAT CHAZY RIVER	--	Clinton	Silt (Sediment)	Agric. - Row Crops
	Lake Champlain Proper		Lower Great Chazy River	10-017	GREAT CHAZY RIVER	--	Clinton	Silt (Sediment)	Road sanding
	Lake Champlain Proper		Lower Great Chazy River	10-018	GREAT CHAZY RIVER	--	Clinton	Silt (Sediment)	Road sanding
	Lake Champlain Proper		Lower Great Chazy River	10-019	GREAT CHAZY RIVER	--	Clinton	Silt (Sediment)	Road sanding

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-10
PRIORITY CANDIDATES FOR WATERSHED PLANNING
LAKE CHAMPLAIN BASIN (10)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
10-01	Lake Champlain Proper	02010006.100	Lk Champlain - Great Chazy Rr to Canadian Border	10-006	KINGS BAY	--	Clinton	Nutrients	On-site Wastewater Systems
10-02	Great Chazy River	02010006.070	Little Chazy River - Lake Champlain	10-004	LITTLE CHAZY RIV.	--	Clinton	Unknown Toxic	Agric. - Row Crops
	Great Chazy River		Little Chazy River - Lake Champlain	10-005	W. CHAZY AQUIFER	GW	Clinton	Pathogens	Land Disposal (landfills)
	Great Chazy River		Little Chazy River - Lake Champlain	10-007	MONTY BAY	--	Clinton	Nutrients	Agric. - Manure Spreading
	Great Chazy River	02010006.080	Upper Great Chazy River	10-003	GREAT CHAZY RIVER	--	Clinton	Silt (Sediment)	Agric. - Row Crops
	Great Chazy River		Upper Great Chazy River	10-020	N. BR. GR. CHAZY	--	Clinton	Silt (Sediment)	Road sanding
10-03	Saranac River	02010006.010	Upper Saranac River	16-014	SARANAC RIVER	--	Essex	Silt (Sediment)	Road sanding
	Saranac River		Upper Saranac River	16-015	SARANAC RIVER	--	Essex	Silt (Sediment)	Road sanding
	Saranac River		Upper Saranac River	16-016	LAKE FLOWER	--	Essex	Silt (Sediment)	Road sanding
	Saranac River		Upper Saranac River	17-002	UPPER SARANAC LK.	--	Franklin	Oxygen-Demanding Substances	Agric. - Truck farm
	Saranac River	02010006.020	North Branch - Saranac River	10-022	N. BR. SARANAC R.	--	Clinton	Silt (Sediment)	Road sanding
	Saranac River		North Branch - Saranac River	17-003	N. BR. SARANAC R.	--	Franklin	Silt (Sediment)	Highway/Bridge Construction
	Saranac River	02010006.030	Middle Saranac River	10-010	SARANAC RIVER	--	Clinton	Pathogens	On-site Wastewater Systems
	Saranac River		Middle Saranac River	10-021	SARANAC RIVER	--	Clinton	Silt (Sediment)	Road sanding
	Saranac River		Middle Saranac River	10-029	SARANAC RIVER	--	Clinton	Aesthetics	On-site Wastewater Systems
	Saranac River		Middle Saranac River	10-030	SARANAC RIVER	--	Clinton	Water Level or Flow	Flow Regulation/Modification
10-04	Ausable-Bouquet River	02010004.020	North Branch Bouquet River	16-022	N. BR. BOUQUET R.	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River	02010004.030	Bouquet River	16-002	LINCOLN POND	--	Essex	Nutrients	On-site Wastewater Systems
	Ausable-Bouquet River		Bouquet River	16-003	BOUQUET RIVER	--	Essex	Aesthetics	Dumping/Trash
	Ausable-Bouquet River		Bouquet River	16-023	BOUQUET RIVER	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		Bouquet River	16-024	BOUQUET RIVER	--	Essex	Silt (Sediment)	Road sanding

Page A-10.2 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

*GW = Groundwater; ** Nonpoint source identified is not primary water quality problem - it is either a point source, atmo. dep. or contaminated sediments.

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-10

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LAKE CHAMPLAIN BASIN (10)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
10-04	Ausable-Bouquet River	02010004.030	Bouquet River	16-025	BOUQUET RIVER	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		Bouquet River	16-026	THE BRANCH (BOUQ.)	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		Bouquet River	16-033	BOUQUET RIVER	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		Bouquet River	16-074	BOUQUET RIVER	--	Essex	Aesthetics	On-site Wastewater Systems
	Ausable-Bouquet River	02010004.050	East Branch - Ausable River	16-009	E. BR. AUSABLE R.	--	Essex	Pathogens	On-site Wastewater Systems
	Ausable-Bouquet River		Fast Branch - Ausable River	16-013	PHELPS BROOK	--	Essex	Silt (Sediment)	Silviculture
	Ausable-Bouquet River		East Branch - Ausable River	16-019	E. BR. AUSABLE R.	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		East Branch - Ausable River	16-020	E. BR. AUSABLE R.	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		East Branch - Ausable River	16-021	CASCADE BROOK	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		East Branch - Ausable River	16-035	CHAPEL POND TRIB	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River	02010004.060	West Branch - Ausable River	10-028	PALMER BROOK	--	Clinton	Aesthetics	On-site Wastewater Systems
	Ausable-Bouquet River		West Branch - Ausable River	16-006	COLD BROOK	--	Essex	Silt (Sediment)	Urban Runoff
	Ausable-Bouquet River		West Branch - Ausable River	16-007	PARADOX BAY	--	Essex	Silt (Sediment)	Unknown
	Ausable-Bouquet River		West Branch - Ausable River	16-008	CHUBB RIVER	--	Essex	Silt (Sediment)	Dumping of collected road snow
	Ausable-Bouquet River		West Branch - Ausable River	16-017	W. BR. AUSABLE R.	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		West Branch - Ausable River	16-018	W. BR. AUSABLE R.	--	Essex	Silt (Sediment)	Road sanding
	Ausable-Bouquet River		West Branch - Ausable River	16-032	W. BR. AUSABLE R.	--	Essex	Aesthetics	On-site Wastewater Systems
	Ausable-Bouquet River	02010004.070	Lower Ausable River	10-014	AUSABLE RIVER	--	Clinton	Aesthetics	Land Disposal (landfills)
	Ausable-Bouquet River		Lower Ausable River	10-025	AUSABLE RIVER	--	Clinton	Silt (Sediment)	Road sanding

Page A-10.3 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

*GW = Groundwater; ** Nonpoint source identified is not primary water quality problem - it is either a point source, atmo. dep. or contaminated sediments.

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-10 PRIORITY CANDIDATES FOR WATERSHED PLANNING LAKE CHAMPLAIN BASIN (10)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
10-04	Ausable-Bouquet River	02010004.070	Lower Ausable River	16-031	AUSABLE RIVER	--	Essex	Water Level or Flow	Flow Regulation/Modification
	Ausable-Bouquet River	02010004.080	Little Ausable River	10-012	LITTLE AUSABLE R.	--	Clinton	Pathogens	** Agric. - Row Crops
	Ausable-Bouquet River		Little Ausable River	10-013	SILVER STREAM	--	Clinton	Silt (Sediment)	Agric. - Livestock in Stream
	Ausable-Bouquet River		Little Ausable River	10-024	LITTLE AUSABLE R.	--	Clinton	Silt (Sediment)	Road sanding
10-05	Lake Champlain Stream	02010001.120	Mettawee River	58-006	INDIAN RIVER	--	Washington	Thermal Changes	Agric. - Riparian Veg. Removal
	Lake Champlain Stream		Mettawee River	58-007	NETTAWEE RIVER	--	Washington	Thermal Changes	Agric. - Riparian Veg. Removal
	Lake Champlain Stream	02010001.140	Wood Creek - Champlain Canal	57-011	HALFWAY CREEK	--	Warren	Thermal Changes	Urban Runoff
	Lake Champlain Stream		Wood Creek - Champlain Canal	57-012	CEMETERY BROOK	--	Warren	Silt (Sediment)	Highway/Bridge Construction
	Lake Champlain Stream		Wood Creek - Champlain Canal	57-013	GLEN LAKE	--	Warren	Nutrients	On-site Wastewater Systems
	Lake Champlain Stream		Wood Creek - Champlain Canal	58-005	BIG CREEK	--	Washington	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Lake Champlain Stream	02010001.220	Putnam Creek	16-011	PUTNAM CREEK	--	Essex	Pathogens	On-site Wastewater Systems
	Lake Champlain Stream		Putnam Creek	16-028	PUTNAM CREEK	--	Essex	Silt (Sediment)	Road sanding
10-06	Lake George	02010001.190	Lake George	57-014	ENGLISH BROOK	--	Warren	Silt (Sediment)	Road sanding
	Lake George		Lake George	57-015	WEST BROOK	--	Warren	Silt (Sediment)	Road sanding
	Lake George		Lake George	57-016	SMITH BROOK	--	Warren	Silt (Sediment)	Road sanding
	Lake George		Lake George	57-017	INDIAN BROOK	--	Warren	Silt (Sediment)	Road sanding
	Lake George		Lake George	57-018	FINKLE BROOK	--	Warren	Silt (Sediment)	Road sanding
	Lake George		Lake George	57-019	HUDDLE BROOK	--	Warren	Silt (Sediment)	Road sanding
	Lake George		Lake George	57-020	HAGUE BROOK	--	Warren	Silt (Sediment)	Road sanding
	Lake George		Lake George	57-021	LAKE GEORGE	--	Warren	Nutrients	Urban Runoff

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-11

PRIORITY CANDIDATES FOR WATERSHED PLANNING
UPPER HUDSON RIVER BASIN (11)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
11-01	Upper Hudson Main Stem	02020003.010	Hudson River - Sacandaga River to Clendon Brook	46-007	STURDEVANT CREEK	--	Saratoga	Silt (Sediment)	Demolition Material
	Upper Hudson Main Stem		Hudson River - Sacandaga River to Clendon Brook	57-010	BEAVER DAM BROOK	--	Warren	Silt (Sediment)	Land Clearing/Development
	Upper Hudson Main Stem		Hudson River - Sacandaga River to Clendon Brook	57-022	HUDSON RIVER	--	Warren	Pathogens	On-site Wastewater Systems
	Upper Hudson Main Stem	02020003.020	Hudson River - Clendon Brook to Snook Kill	46-006	RICE BROOK	--	Saratoga	Oxygen-Demanding Substances	Land Disposal (Landfills)
	Upper Hudson Main Stem		Hudson River - Clendon Brook to Snook Kill	46-016	SNOOK KILL TRIBS	--	Saratoga	Silt (Sediment)	Land Clearing/Development
	Upper Hudson Main Stem		Hudson River - Clendon Brook to Snook Kill	57-023	HUDSON RIVER	--	Warren	Unknown Toxic	Land Disposal (Landfills)
	Upper Hudson Main Stem	02020003.030	Hudson River - Snook Kill to Batten Kill	58-003	SUMMIT LAKE	--	Washington	Nutrients	On-site Wastewater Systems
	Upper Hudson Main Stem	02020003.090	Hudson River - Snook Kill - Fish Creek	46-001	KAYADEROSSERAS CK	--	Saratoga	Silt (Sediment)	Construction
	Upper Hudson Main Stem		Hudson River - Snook Kill - Fish Creek	46-002	KAYADEROSSERAS 2	--	Saratoga	Silt (Sediment)	Streambank Erosion
	Upper Hudson Main Stem		Hudson River - Snook Kill - Fish Creek	46-003	WHEELER CK TRIB	--	Saratoga	Aesthetics	Dumping/Trash
	Upper Hudson Main Stem		Hudson River - Snook Kill - Fish Creek	46-004	SPRING RUN	--	Saratoga	Oxygen-Demanding Substances	** Land Disposal (Landfills)
	Upper Hudson Main Stem		Hudson River - Snook Kill - Fish Creek	46-005	TRIB 2-SPRING RUN	--	Saratoga	Silt (Sediment)	Construction
	Upper Hudson Main Stem		Hudson River - Snook Kill - Fish Creek	46-008	CLOVER MILL CREEK	--	Saratoga	Metals	Land Disposal (Landfills)

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-11 PRIORITY CANDIDATES FOR WATERSHED PLANNING UPPER HUDSON RIVER BASIN (11)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
11-01	Upper Hudson Main Stem	02020003.240	Hudson River - Hoosic River to Mohawk River	46-009	LONGKILL	--	Saratoga	Silt (Sediment)	Construction
	Upper Hudson Main Stem		Hudson River - Hoosic River to Mohawk River	46-012	DWAAS KILL - MAIN	--	Saratoga	Silt (Sediment)	Land Clearing/Development
	Upper Hudson Main Stem		Hudson River - Hoosic River to Mohawk River	46-013	DWAAS KILL TRIBS	--	Saratoga	Silt (Sediment)	Land Clearing/Development
	Upper Hudson Main Stem		Hudson River - Hoosic River to Mohawk River	46-014	DWAAS KILL-TRIB2	--	Saratoga	Silt (Sediment)	Land Clearing/Development
	Upper Hudson Main Stem		Hudson River - Hoosic River to Mohawk River	46-015	ANTHONY KILL #7	--	Saratoga	Pesticides	Land Clearing/Development
11-02	Hoosic River	02020003.180	Little Hoosic River	42-005	LITTLE HOOSIC RIV	--	Rensselaer	Silt (Sediment)	Streambank Erosion
	Hoosic River	02020003.230	Hoosic River	42-001	TOMHANOCK RESERV	--	Rensselaer	Nutrients	Agric. - Row Crops
	Hoosic River		Hoosic River	42-011	HOOSIC RIVER	--	Rensselaer	Priority Organics	Unknown
	Hoosic River		Hoosic River	42-012	JOHNSONVILLE RES.	--	Rensselaer	Water Level or Flow	Flow Regulation/Modification
	Hoosic River		Hoosic River	42-013	HOOSIC RIVER	--	Rensselaer	Priority Organics	** Flow Regulation/Modification
11-03	Hoosic River		Hoosic River	58-001	LAKE LAUDERDALE	--	Washington	Nutrients	On-site Wastewater Systems
	Battenkill River	02020003.070	White Creek	58-004	WHITE CREEK	--	Washington	Silt (Sediment)	Agric. - Row Crops
	Battenkill River	02020003.080	Batten Kill	58-002	COSSAYUNA LAKE	--	Washington	Nutrients	On-site Wastewater Systems
11-04	Hudson Headwaters	02020001.010	Indian River	21-007	INDIAN LAKE	--	Hamilton	Water Level or Flow	Flow Regulation/Modification
	Hudson Headwaters		Indian River	21-008	INDIAN RIVER	--	Hamilton	Water Level or Flow	Flow Regulation/Modification
	Hudson Headwaters		Indian River	21-009	LAKE ABENAKEE	--	Hamilton	Water Level or Flow	Flow Regulation/Modification
	Hudson Headwaters		Indian River	21-010	ADIRONDACK LAKE	--	Hamilton	Nutrients	Nutrient-rich sediments
	Hudson Headwaters		Indian River	21-025	MIAMI RIVER	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Hudson Headwaters		Indian River	21-026	LEWEY LAKE	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Hudson Headwaters	02020001.020	Cedar River	21-016	LAKE DURANT	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Hudson Headwaters		Cedar River	21-029	CEDAR RIVER	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
	Hudson Headwaters	02020001.060	North River - Hudson	57-001	THIRTEENTH BROOK	--	Warren	Silt (Sediment)	Resource

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APPENDIX A-11

PRIORITY CANDIDATES FOR WATERSHED PLANNING UPPER HUDSON RIVER BASIN (11)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEQ* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
Hudson Headwaters		02020001.070	Mill Creek - Hudson River	57-003	MILL CREEK	--	Warren	Silt (Sediment)	Extraction/development Highway/Bridge Construction
Hudson Headwaters		02020001.080	Upper Schroon River	16-030	THE BRANCH (SCHR)	--	Essex	Silt (Sediment)	Road sanding
Hudson Headwaters		02020001.090	Middle Schroon River	16-029	ROGERS BROOK	--	Essex	Silt (Sediment)	Road sanding
Hudson Headwaters		02020001.100	Middle Schroon River	57-004	SCHROON LAKE	--	Warren	Priority Organics	Unknown
Hudson Headwaters		02020001.110	Trout Brook	16-012	MINERVA LAKE	--	Essex	Nutrients	On-site Wastewater Systems
Hudson Headwaters			Lower Schroon River	57-002	LOON LAKE	--	Warren	Pathogens	Parasite from snails
Hudson Headwaters			Lower Schroon River	57-005	SCHROON RIVER	--	Warren	Silt (Sediment)	Road sanding
Hudson Headwaters			Lower Schroon River	57-006	SCHROON RIVER	--	Warren	Aesthetics	On-site Wastewater Systems
Hudson Headwaters			Lower Schroon River	57-008	BRANT LAKE	--	Warren	Nutrients	On-site Wastewater Systems
Hudson Headwaters		02020001.130	Stoney Creek - Hudson River	57-007	STONY CREEK	--	Warren	Silt (Sediment)	Roadbank Erosion
Hudson Headwaters		02020002.010	Lake Pleasant - Sacandaga River	21-004	OXBOW LAKE	--	Hamilton	Nutrients	On-site Wastewater Systems
Hudson Headwaters			Lake Pleasant - Sacandaga River	21-005	SACANDAGA LAKE	--	Hamilton	Nutrients	On-site Wastewater Systems
Hudson Headwaters			Lake Pleasant - Sacandaga River	21-006	LAKE PLEASANT	--	Hamilton	Pathogens	Waterfowl
Hudson Headwaters			Lake Pleasant - Sacandaga River	21-011	SACANDAGA LAKE	--	Hamilton	Nutrients	Beaver dam dismantling
Hudson Headwaters		02020002.030	Piseco Lake - Sacandaga River	21-002	PISECO LAKE	--	Hamilton	Nutrients	On-site Wastewater Systems
Hudson Headwaters			Piseco Lake - Sacandaga River	21-003	KETTLE CREEK	--	Hamilton	Salts	Storage/App of Deicing Material
Hudson Headwaters		02020002.050	Middle Sacandaga River	21-027	SACANDAGA RIVER	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
Hudson Headwaters			Middle Sacandaga River	21-028	SACANDAGA RVR, WB	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
Hudson Headwaters		02020002.060	East Stoney Creek	21-013	SACANDAGA RVR-E.B	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material
Hudson Headwaters			East Stoney Creek	21-014	EAST STONY CREEK	--	Hamilton	Silt (Sediment)	Storage/App of Deicing Material

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-11
PRIORITY CANDIDATES FOR WATERSHED PLANNING
UPPER HUDSON RIVER BASIN (11)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
	Hudson Headwaters		East Stoney Creek	57-009	EAST STONY CREEK	--	Warren	Silt (Sediment)	Material
	Hudson Headwaters	02020002.080	Sacandaga Reservoir	18-001	KENNYETTO CREEK	--	Fulton	Silt (Sediment)	Silviculture
	Hudson Headwaters		Sacandaga Reservoir	18-002	KENNYETTO CREEK	--	Fulton	Pathogens	Agric. - Livestock in Stream
	Hudson Headwaters		Sacandaga Reservoir	18-003	GREAT SACANDAGA L	--	Fulton	Water Level or Flow	On-site Wastewater Systems
	Hudson Headwaters		Sacandaga Reservoir	18-004	MAYFIELD LAKE	--	Fulton	Pathogens	Flow Regulation/Modification
	Hudson Headwaters		Sacandaga Reservoir	46-017	GREAT SACANDAGA L	--	Saratoga	Silt (Sediment)	On-site Wastewater Systems
									Streambank Erosion

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APPENDIX A-12

PRIORITY CANDIDATES FOR WATERSHED PLANNING
MOHAWK RIVER BASIN (12)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
12-01	Mohawk River Main Stem	02020004.010	Delta Reservoir	33-005	DELTA LAKE	--	Oneida	Water Level or Flow	Flow Regulation/Modification
	Mohawk River Main Stem		Delta Reservoir	33-006	NYS BARGE CANAL	--	Oneida	Silt (Sediment)	Dredging
	Mohawk River Main Stem		Delta Reservoir	33-016	MOHAWK RIVER	--	Oneida	Silt (Sediment)	Agric. - Row Crops
	Mohawk River Main Stem	02020004.020	Nine Mile Creek	33-007	NINE MILE CREEK	--	Oneida	Thermal Changes	Agric. - Riparian Veg. Removal
	Mohawk River Main Stem	02020004.030	Delta Reservoir to Oriskany Creek	33-020	VALLEY FILL AQUIF GW	GW	Oneida	Salts	Storage/App of Deicing Material
	Mohawk River Main Stem	02020004.050	Sauguot Creek	33-001	MUD CREEK	--	Oneida	Silt (Sediment)	Hydrologic/Habitat Modification
	Mohawk River Main Stem		Sauguot Creek	33-018	SAUGUOT CREEK	--	Oneida	Silt (Sediment)	Urban Runoff
	Mohawk River Main Stem	02020004.060	Nine Mile Creek to Sterling Creek	22-010	MOHAWK TRIBUTARIE	--	Herkimer	Silt (Sediment)	Agric. - Livestock in Stream
	Mohawk River Main Stem		Nine Mile Creek to Sterling Creek	22-016	MOHAWK RIVER	--	Herkimer	Oxygen-Demanding Substances	** Land Disposal (Landfills)
	Mohawk River Main Stem		Nine Mile Creek to Sterling Creek	33-012	CRANE CREEK	--	Oneida	Salts	Storage/App of Deicing Material
	Mohawk River Main Stem		Nine Mile Creek to Sterling Creek	33-015	STARCH FACTORY	--	Oneida	Silt (Sediment)	Urban Runoff
	Mohawk River Main Stem		Nine Mile Creek to Sterling Creek	33-019	MOHAWK RIVER	--	Oneida	Thermal Changes	Urban Runoff
	Mohawk River Main Stem	02020004.070	Sterling Creek to West Canada Creek	22-011	MOYER CREEK	--	Herkimer	Nutrients	Agric. - Manure Spreading
	Mohawk River Main Stem		Sterling Creek to West Canada Creek	22-017	STERLING CREEK	--	Herkimer	Water Level or Flow	Streambank Destabilization/Modification
	Mohawk River Main Stem	02020004.080	Steele Creek	22-001	SPINNERSVILLE POND	--	Herkimer	Pathogens	Waterfowl
	Mohawk River Main Stem		Steele Creek	22-002	STEELE CREEK	--	Herkimer	Silt (Sediment)	Streambank
	Mohawk River Main Stem	02020004.090	Fulmer Creek	22-008	FULMER CREEK	--	Herkimer	Silt (Sediment)	Destabilization/Modification Streambank
	Mohawk River Main Stem		Fulmer Creek	22-014	LIMESTONE AQUIFER GW	GW	Herkimer	Pathogens	Destabilization/Modification On-site Wastewater Systems
	Mohawk River Main Stem	02020004.110	South Branch West Canada Creek	21-001	VLY BROOK	--	Hamilton	Salts	Storage/App of Deicing Material

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-12 PRIORITY CANDIDATES FOR WATERSHED PLANNING MOHAWK RIVER BASIN (12)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
12-01	Mohawk River Main Stem	02020004.200	Lower East Canada Creek	18-011	CANADA LAKE	--	Fulton	Water Level or Flow	Flow Regulation/Modification
	Mohawk River Main Stem	02020004.210	Otsuguog Creek	22-012	OTSQUAGO CREEK	--	Herkimer	Nutrients	Agric. - Improper Manure Storage
	Mohawk River Main Stem		Otsuguog Creek	29-010	OTSQUAGO CREEK	--	Montgomery	Thermal Changes	Agric. - Riparian Veg. Removal
	Mohawk River Main Stem	02020004.220	East Canada Creek to Caroga Creek	29-005	ZIMMERMAN CREEK	--	Montgomery	Thermal Changes	Agric. - Riparian Veg. Removal
	Mohawk River Main Stem	02020004.230	Caroga Creek	18-007	EAST CAROGA LAKE	--	Fulton	Nutrients	On-site Wastewater Systems
	Mohawk River Main Stem		Caroga Creek	18-008	NORTH CREEK	--	Fulton	Pathogens	Agric. - Manure Spreading
	Mohawk River Main Stem		Caroga Creek	18-010	PECK LAKE	--	Fulton	Water Level or Flow	Flow Regulation/Modification
	Mohawk River Main Stem		Caroga Creek	29-001	CAROGA CREEK	--	Montgomery	Water Level or Flow	Flow Regulation/Modification
	Mohawk River Main Stem	02020004.240	Otsuguog Creek to Canajoharie Creek	29-004	CANAJOHARIE CREEK	--	Montgomery	Thermal Changes	Agric. - Riparian Veg. Removal
	Mohawk River Main Stem	02020004.250	Canajoharie Creek to Flat Creek	29-003	FLAT CREEK	--	Montgomery	Silt (Sediment)	Agric. - Row Crops
	Mohawk River Main Stem	02020004.280	Cayadutta Creek	18-005	HALES CREEK	--	Fulton	Silt (Sediment)	Agric. - Barnyard Runoff
	Mohawk River Main Stem		Cayadutta Creek	18-006	MATHEW CREEK	--	Fulton	Unknown Toxic	Land Disposal (landfills)
	Mohawk River Main Stem		Cayadutta Creek	18-009	CAYDUTTA CREEK	--	Fulton	Oxygen-Demanding Substances	** Agric. - Row Crops
	Mohawk River Main Stem		Cayadutta Creek	29-009	CAYDUTTA CREEK	--	Montgomery	Oxygen-Demanding Substances	** Agric. - Row Crops
	Mohawk River Main Stem	02020004.300	Cayadutta Creek to North Chuctanunda Creek	29-006	DANASCARA CREEK	--	Montgomery	Nutrients	Agric. - Barnyard Runoff
	Mohawk River Main Stem	02020004.320	North Chuctanunda Creek	29-007	NO.CHUCTANUNDA CK	--	Montgomery	Oxygen-Demanding Substances	On-site Wastewater Systems
	Mohawk River Main Stem	02020004.350	Sandsea Kill-Chaughtanoonda CK to Alplaus Kill	47-001	MOHAWK RIVER	--	Schenectady	Priority Organics	** Urban Runoff
	Mohawk River Main Stem		Sandsea Kill-Chaughtanoonda	47-004	GREAT FLATS AQFR	GV	Schenectady	Priority Organics	Urban Runoff

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-12 PRIORITY CANDIDATES FOR WATERSHED PLANNING MOHAWK RIVER BASIN (12)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
	Mohawk River Main Stem		Ck to Alplaus Kill	47-007	CONHORN CREEK	--	Schenectady	Nutrients	Urban Runoff
			Sandsea						
			Kill-Chaughtanoonda						
			Ck to Alplaus Kill	47-008	COLLINS LAKE	--	Schenectady	Nutrients	Urban Runoff
	Mohawk River Main Stem		Sandsea						
			Kill-Chaughtanoonda						
			Ck to Alplaus Kill	47-009	COLLEGE CREEK	--	Schenectady	Nutrients	Urban Runoff
	Mohawk River Main Stem		Sandsea						
			Kill-Chaughtanoonda						
			Ck to Alplaus Kill	47-010	POENTIC KILL	--	Schenectady	Unknown Toxic	Land Disposal (landfills)
	Mohawk River Main Stem		Sandsea						
			Kill-Chaughtanoonda						
			Ck to Alplaus Kill	47-011	SCHEMERHORN CREEK	--	Schenectady	Nutrients	Urban Runoff
	Mohawk River Main Stem		Sandsea						
			Kill-Chaughtanoonda						
			Ck to Alplaus Kill	47-012	VALE CEMETARY PD	--	Schenectady	Nutrients	Urban Runoff
	Mohawk River Main Stem		Sandsea						
			Kill-Chaughtanoonda						
			Ck to Alplaus Kill	47-002	LISHA KILL	--	Schenectady	Nutrients	Urban Runoff
	Mohawk River Main Stem	02020004.370	Alplaus Kill to Lisha Kill						
	Mohawk River Main Stem	02020004.380	Alplaus Kill to Stoney Creek						
	Mohawk River Main Stem		Alplaus Kill to Lisha Kill	46-010	STONE CK TRIBS	--	Saratoga	Thermal Changes	Land Clearing/Development
	Mohawk River Main Stem		Alplaus Kill to Stoney Creek	46-011	MOHAWK RIVER TRIB	--	Saratoga	Silt (Sediment)	Urban Runoff
	Mohawk River Main Stem	02020004.400	Lisha Kill to mouth	01-001	MOHAWK RIVER	--	Albany	Oxygen-Demanding Substances	Unknown
	Mohawk River Main Stem		Lisha Kill to mouth	01-017	ANN LEE POND	--	Albany	Nutrients	Urban Runoff
	12-02 Schoharie Creek	02020005.010	Schoharie Reservoir	20-009	SCHOHARIE CREEK	--	Greene	Silt (Sediment)	Streambank Erosion
	Schoharie Creek		Schoharie Reservoir	20-010	LK RIP VAN WINKLE	--	Greene	Pathogens	On-site Wastewater Systems
	Schoharie Creek		Schoharie Reservoir	20-011	SCHOHARIE CREEK	--	Greene	Water Level or Flow	Flow Regulation/Modification
	Schoharie Creek		Schoharie Reservoir	48-005	SCHOHARIE RESERVR	--	Schoharie	Silt (Sediment)	Land Clearing/Development

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APPENDIX A-12
PRIORITY CANDIDATES FOR WATERSHED PLANNING
MOHAWK RIVER BASIN (12)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
12-02	Schoharie Creek	02020005.010	Schoharie Reservoir	48-014	SCHOHARIE RESERV	--	Schoharie	Silt (Sediment)	Land Clearing/Development
	Schoharie Creek	02020005.020	Batavia Kill	20-008	BATAVIA KILL	--	Greene	Silt (Sediment)	Streambank Erosion
	Schoharie Creek	02020005.030	Manor Kill	48-010	MANOR KILL	--	Schoharie	Silt (Sediment)	Agric. - Overgrazing
	Schoharie Creek	02020005.050	West Kill	48-007	SUMMIT LAKE	--	Schoharie	Nutrients	On-site Wastewater Systems
	Schoharie Creek	02020005.070	Upper Schoharie Creek	48-004	BLLENHEIM/GILBOA R	--	Schoharie	Silt (Sediment)	Flow Regulation/Modification
	Schoharie Creek	02020005.080	Little Schoharie Creek	48-006	HUNTERS LAND CREEK	--	Schoharie	Silt (Sediment)	Streambank Erosion
	Schoharie Creek	02020005.090	Fox Creek	01-002	FOX CREEK	--	Albany	Pathogens	Agric. - Manure Spreading
	Schoharie Creek		Fox Creek	01-003	ONDERDONK LAKE	--	Albany	Nutrients	On-site Wastewater Systems
	Schoharie Creek		Fox Creek	01-016	WARNERS LAKE	--	Albany	Oxygen-Demanding Substances	On-site Wastewater Systems
	Schoharie Creek		Fox Creek	01-023	SWITZKILL	--	Albany	Silt (Sediment)	Agric. - Livestock in Stream
12-03	Schoharie Creek		Fox Creek	48-001	FOX CREEK	--	Schoharie	Silt (Sediment)	Land Clearing/Development
	Schoharie Creek	02020005.100	Cobleskill Creek	48-002	ENGLEVILLE POND	--	Schoharie	Nutrients	Agric. - Row Crops
	Schoharie Creek		Cobleskill Creek	48-008	COBLESKILL RES.	--	Schoharie	Pathogens	Agric. - Livestock in Stream
	Schoharie Creek		Cobleskill Creek	48-009	CENTRAL BRIDGE RS	--	Schoharie	Pathogens	Agric. - Livestock in Stream
	Schoharie Creek		Cobleskill Creek	48-012	WEST CREEK	--	Schoharie	Pathogens	On-site Wastewater Systems
	Schoharie Creek		Cobleskill Creek	48-013	COBLESKILL CREEK	--	Schoharie	Nutrients	Agric. - Row Crops
	Schoharie Creek	02020005.130	Lower Schoharie Creek	29-002	SCHOHARIE CREEK	--	Montgomery	Thermal Changes	Flow Regulation/Modification
	Schoharie Creek		Lower Schoharie Creek	48-003	SCHOHARIE CREEK	--	Schoharie	Silt (Sediment)	Streambank Erosion
	West Canada Creek	02020004.130	Winckley Reservoir	33-008	HINKLEY RESERVOIR	--	Oneida	Water Level or Flow	Flow Regulation/Modification
	West Canada Creek	02020004.140	Center West Canada Creek	22-015	COLD BROOK	--	Herkimer	Aesthetics	On-site Wastewater Systems
West Canada Creek	West Canada Creek		Center West Canada Creek	22-018	WEST CANADA CREEK	--	Herkimer	Aesthetics	On-site Wastewater Systems
	West Canada Creek		Center West Canada Creek	33-010	STEUBEN CREEK	--	Oneida	Silt (Sediment)	Agric. - Overgrazing
	West Canada Creek		Center West Canada Creek	33-017	CINCINNATI CREEK	--	Oneida	Aesthetics	On-site Wastewater Systems
	West Canada Creek	02020004.150	Lower West Canada Creek	22-009	WHITE CREEK	--	Herkimer	Silt (Sediment)	Agric. - Riparian Veg. Removal
	West Canada Creek		Lower West Canada Creek	22-013	MALTANNER CREEK	--	Herkimer	Silt (Sediment)	Streambank Erosion
	West Canada Creek		Lower West Canada Creek						
	West Canada Creek		Lower West Canada Creek						

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APPENDIX A-12

PRIORITY CANDIDATES FOR WATERSHED PLANNING
MOHAWK RIVER BASIN (12)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
12-04	Oriskany Creek	02020004.040	Oriskany Creek	27-005	MADISON LAKE	--	Madison	Nutrients	Land Clearing/Development
	Oriskany Creek		Oriskany Creek	27-006	LELAND POND	--	Madison	Nutrients	On-site Wastewater Systems
	Oriskany Creek		Oriskany Creek	33-009	DEANS CREEK	--	Oneida	Silt (Sediment)	Agric. - Row Crops
	Oriskany Creek		Oriskany Creek	33-011	ORISKANY CREEK	--	Oneida	Silt (Sediment)	Agric. - Row Crops
	Oriskany Creek		Oriskany Creek	33-013	BARKER BROOK	--	Oneida	Silt (Sediment)	Highway/Bridge Construction
	Oriskany Creek		Oriskany Creek	33-014	BIG CREEK	--	Oneida	Silt (Sediment)	Streambank Erosion

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-13

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LOWER HUDSON RIVER BASIN (13)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
13-01	Lower Hudson River Main Stem	02020006.020	Poestenskill to Mill Creek	42-006	BURDEN LAKE	--	Rensselaer	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Poestenskill to Mill Creek	42-007	MILL CREEK	--	Rensselaer	Silt (Sediment)	Land Clearing/Development
	Lower Hudson River Main Stem		Poestenskill to Mill Creek	42-015	CRYSTAL LAKE	--	Rensselaer	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Poestenskill to Mill Creek	42-016	GLASS LAKE	--	Rensselaer	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Poestenskill to Mill Creek	42-017	SNYDERS LAKE	--	Rensselaer	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Mill Creek to Mooredenor Creek	42-002	MOORENOR KILL	--	Rensselaer	Silt (Sediment)	Land Clearing/Development
	Lower Hudson River Main Stem	02020006.040	Mill Creek to Mooredenor Creek	42-003	SCHODACK TER-ADFR GW	GW	Rensselaer	Unknown Toxic	Land Disposal (Landfills)
	Lower Hudson River Main Stem		Mill Creek to Mooredenor Creek	42-009	HAMPTON MANOR LK.	--	Rensselaer	Nutrients	Urban Runoff
	Lower Hudson River Main Stem	02020006.060	Onesquethaw Creek	01-005	ONESQUETHAW CREEK	--	Albany	Water Level or Flow	Flow Regulation/Modification
	Lower Hudson River Main Stem		Onesquethaw Creek	01-006	HELDERBERG LAKE	--	Albany	Nutrients	Agric. - Row Crops
	Lower Hudson River Main Stem		Onesquethaw Creek	01-019	COEYMAN'S CREEK	--	Albany	Silt (Sediment)	Land Disposal (Landfills)
	Lower Hudson River Main Stem	02020006.070	Hannacrois Creek	01-004	HANNA-CROIS CREEK	--	Albany	Water Level or Flow	Flow Regulation/Modification
	Lower Hudson River Main Stem	02020006.080	Mooredener Kill to Kinderhook Creek	42-004	VLOCKIE KILL	--	Rensselaer	Nutrients	Agric. - Row Crops
	Lower Hudson River Main Stem	02020006.130	Hannacrois Creek to Catskill Creek	20-001	SLEEPY HOLLOW LKE	--	Greene	Nutrients	Agric. - Fertilizer Application
	Lower Hudson River Main Stem		Hannacrois Creek to Catskill Creek	20-002	BRONCK'S LAKE	--	Greene	Nutrients	Agric. - Barnyard Runoff
	Lower Hudson River Main Stem		Hannacrois Creek to Catskill Creek	20-003	NEW BALTIMORE AQ.	GW	Greene	Pathogens	On-site Wastewater Systems

Page A-13.1 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

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APPENDIX A-13

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LOWER HUDSON RIVER BASIN (13)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
13-01	Lower Hudson River Main Stem	020200006.210	Cementon, NY to Rondout Creek	56-003	SAUKILL	--	Ulster	Nutrients	Chemical Leaks and Spills
	Lower Hudson River Main Stem	020200008.010	Rhinecliff, NY to Wappingers Creek	14-003	INDIAN KILL	--	Dutchess	Pathogens	On-site Wastewater Systems
	Lower Hudson River Main Stem		Rhinecliff, NY to Wappingers Creek	14-004	MORGAN LAKE	--	Dutchess	Silt (Sediment)	Urban Runoff
	Lower Hudson River Main Stem		Rhinecliff, NY to Wappingers Creek	14-005	CASPER CREEK	--	Dutchess	Priority Organics	Urban Runoff
	Lower Hudson River Main Stem	020200008.080	Unnamed trib at Marlboro, NY to Moodna Ck	36-017	ORANGE LAKE	--	Orange	Aesthetics	On-site Wastewater Systems
	Lower Hudson River Main Stem		Unnamed trib at Marlboro, NY to Moodna Ck	36-018	QUASSAIC CREEK	--	Orange	Unknown Toxic	Urban Runoff
	Lower Hudson River Main Stem	02030101.010	Bear Mountain Bridge to Annsville Creek	60-003	WESTCHESTER LAKE	--	Westchester	Nutrients	Lawn Chemicals
	Lower Hudson River Main Stem	02030101.020	Annsville Creek to Croton River	40-023	LAKE TIBET	--	Putnam	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Annsville Creek to Croton River	40-024	LAKE OSCAWANA	--	Putnam	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Annsville Creek to Croton River	40-025	LAKE PEEKSKILL	--	Putnam	Pathogens	On-site Wastewater Systems
	Lower Hudson River Main Stem		Annsville Creek to Croton River	40-026	ROARING BROOK LK	--	Putnam	Nutrients	Urban Runoff
	Lower Hudson River Main Stem		Annsville Creek to Croton River	60-004	DICKEY BROOK	--	Westchester	Nutrients	Lawn Chemicals
	Lower Hudson River Main Stem		Annsville Creek to Croton River	60-005	PETERSON POND	--	Westchester	Nutrients	Urban Runoff
	Lower Hudson River Main Stem		Annsville Creek to Croton River	60-006	PEEKSKILL MOLLOW	--	Westchester	Pathogens	On-site Wastewater Systems
	Lower Hudson River Main Stem		Annsville Creek to Croton River	60-007	CORTLANDT LAKE	--	Westchester	Pathogens	On-site Wastewater Systems

Page A-13.2 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

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APPENDIX A-13

PRIORITY CANDIDATES FOR WATERSHED PLANNING LOWER HUDSON RIVER BASIN (13)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
13-01	Lower Hudson River Main Stem	02030101.020	Annsville Creek to Croton River	60-008	FURNANCE BROOK	--	Westchester	Pathogens	On-site Wastewater Systems
	Lower Hudson River Main Stem		Annsville Creek to Croton River	60-009	FURNANCE BK LAKE	--	Westchester	Silt (Sediment)	Urban Runoff
	Lower Hudson River Main Stem		Annsville Creek to Croton River	60-010	LAKE MEAHAGH	--	Westchester	Pathogens	On-site Wastewater Systems
	Lower Hudson River Main Stem		Putnam Lake Brook	40-004	PUTNAM LAKE	--	Putnam	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Putnam Lake Brook	40-005	PUTNAM LAKE AOUFR GW	GW	Putnam	Salts	Storage/App of Deicing Material
	Lower Hudson River Main Stem		Putnam Lake Brook	40-006	LOST LAKE	--	Putnam	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem	02030101.100	Titicus River above Titicus Reservoir	60-014	TITICUS RIVER	--	Westchester	Nutrients	Agric. - Improper Manure Storage
	Lower Hudson River Main Stem		Titicus River above Titicus Reservoir	60-017	NYS WETLAND L-10	--	Westchester	Silt (Sediment)	Land Clearing/Development
	Lower Hudson River Main Stem	02030101.120	Waccabuc River	60-016	TRUESDALE LAKE	--	Westchester	Silt (Sediment)	On-site Wastewater Systems
	Lower Hudson River Main Stem	02030101.140	Popolopen Brook to near Rockland Lake	44-001	LAKE TIORATI BRK.	--	Rockland	Silt (Sediment)	Land Clearing/Development
	Lower Hudson River Main Stem		Popolopen Brook to near Rockland Lake	44-002	TIMP MOUNTAIN BRK	--	Rockland	Silt (Sediment)	Land Clearing/Development
	Lower Hudson River Main Stem		Popolopen Brook to near Rockland Lake	44-003	LAKE BULLOWA	--	Rockland	Oxygen-Demanding Substances	On-site Wastewater Systems
	Lower Hudson River Main Stem	02030101.150	Popolopen Brook to near Rockland Lake	60-001	UNNAMED PONDS	--	Westchester	Nutrients	On-site Wastewater Systems
	Lower Hudson River Main Stem		Croton River to Harlem River	60-002	SAW MILL RIVER	--	Westchester	Priority Organics	Urban Runoff
	Lower Hudson River Main Stem	02030101.160	Near Rockland Lake to State Line	44-010	SPARKILL	--	Rockland	Pesticides	Golf course runoff
13-02	Croton River Stem	02030101.080	Upper Croton River	14-010	DUTCHESS	--	Dutchess	Nutrients	On-site Wastewater Systems
	Croton River		Upper Croton River	40-001	MUDDY BROOK	--	Putnam	Priority Organics	Land Disposal (Landfills)

Page A-13.3 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

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problem - it is either a point source, atmo. dep. or contaminated sediments.

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APPENDIX A-13

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LOWER HUDSON RIVER BASIN (13)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
13-02	Croton River	02030101.080	Upper Croton River	40-002	LITTLE POND	--	Putnam	Silt (Sediment)	Storm Sewers
			Upper Croton River	40-003	LITTLE POND	--	Putnam	Nutrients	Land Clearing/Development
			Upper Croton River	40-007	LAKE TONETTA	--	Putnam	Nutrients	On-site Wastewater Systems
			Upper Croton River	40-008	TONETTA BROOK	--	Putnam	Priority Organics	Chemical Leaks and Spills
			Upper Croton River	40-009	PEACH LAKE	--	Putnam	Nutrients	On-site Wastewater Systems
			Upper Croton River	40-010	LAKE CARMEL	--	Putnam	Nutrients	On-site Wastewater Systems
			Upper Croton River	40-011	MIDDLE BRANCH RES	--	Putnam	Nutrients	On-site Wastewater Systems
			Upper Croton River	40-012	LIT. BUCK MHP. POND	--	Putnam	Nutrients	On-site Wastewater Systems
			Upper Croton River	40-013	HORSE POUND BROOK	--	Putnam	Nutrients	On-site Wastewater Systems
			Upper Croton River	40-014	PALMER LAKE	--	Putnam	Nutrients	** Construction
			Upper Croton River	40-015	WEST BRANCH RES.	--	Putnam	Nutrients	On-site Wastewater Systems
			Upper Croton River	40-016	DIXON LAKE	--	Putnam	Silt (Sediment)	Land Clearing/Development
			Upper Croton River	40-017	LAKE GILEAD	--	Putnam	Pathogens	On-site Wastewater Systems
			Upper Croton River	40-018	LAKE GLENEIDA	--	Putnam	Nutrients	Urban Runoff
			Upper Croton River	40-019	CROTON FALLS RES	--	Putnam	Nutrients	Urban Runoff
			Upper Croton River	60-047	PEACH LAKE	--	Westchester	Nutrients	On-site Wastewater Systems
13-03	Moodna Creek	02030101.130	Lower Croton River	40-020	LAKE MAHOPAC	--	Putnam	Nutrients	On-site Wastewater Systems
			Lower Croton River	40-021	KIRK LAKE	--	Putnam	Nutrients	On-site Wastewater Systems
			Lower Croton River	60-011	TWIN LAKES	--	Westchester	Nutrients	Urban Runoff
			Lower Croton River	60-012	STONE HILL RIVER	--	Westchester	Nutrients	Lawn Chemicals
			Lower Croton River	60-013	MILL POND	--	Westchester	Nutrients	On-site Wastewater Systems
			Lower Croton River	60-015	TITICUS RESERVOIR	--	Westchester	Pathogens	Urban Runoff
			Lower Croton River	60-018	COLABAUGH POND	--	Westchester	Silt (Sediment)	Storage
			Lower Croton River	60-048	CROSS RIVER RESER	--	Westchester	Nutrients	Urban Runoff
			Lower Croton River	60-049	LAKE KITCAHAN	--	Westchester	Aesthetics	Lawn Chemicals
			Moodna	36-008	WOODBURY STREAM	--	Orange	Oxygen-Demanding Substances	On-site Wastewater Systems
			Creek-Otterkill						** Urban Runoff
			Moodna	36-009	BLACK MEADOW AQUI	GW	Orange	Oil & Grease	Chemical Leaks and Spills
			Creek-Otterkill						
			Moodna	36-010	WALTON LAKE	--	Orange	Nutrients	On-site Wastewater Systems
			Creek-Otterkill						

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APPENDIX A-13
PRIORITY CANDIDATES FOR WATERSHED PLANNING
LOWER HUDSON RIVER BASIN (13)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
13-03	Moodna Creek	02020008.090	Moodna Creek-Otterkill	36-016	LAKE HILDEGARD	--	Orange	Aesthetics	On-site Wastewater Systems
13-04	Fishkill Creek	02020008.070	Castle Point, NY to Fishkill	14-008	HILLSIDE LAKE	--	Dutchess	Nutrients	On-site Wastewater Systems
	Fishkill Creek		Castle Point, NY to Fishkill	14-009	WHALEY LAKE	--	Dutchess	Nutrients	On-site Wastewater Systems
13-05	Wappinger Creek	02020008.050	Huns Lake Creek	14-006	HUNNS LAKE	--	Dutchess	Nutrients	On-site Wastewater Systems
	Wappinger Creek	02020008.060	Wappingers Creek to Castle Point, NY	14-001	SILVER LAKE	--	Dutchess	Nutrients	On-site Wastewater Systems
	Wappinger Creek		Wappingers Creek to Castle Point, NY	14-002	LONG POND	--	Dutchess	Nutrients	On-site Wastewater Systems
	Wappinger Creek		Wappingers Creek to Castle Point, NY	14-007	UPTON LAKE	--	Dutchess	Nutrients	On-site Wastewater Systems
	Wappinger Creek		Wappingers Creek to Castle Point, NY	14-013	WAPPINGERS LAKE	--	Dutchess	Silt (Sediment)	Agric. - Other
13-06	Rondout-Wallkill Rivers	02020007.050	Castle Point, NY Pochuck Creek	36-004	WAWAYANDA RIVER	--	Orange	Oxygen-Demanding Substances	** Urban Runoff
	Rondout-Wallkill Rivers		Pochuck Creek	36-011	WALLKILL RIVER	--	Orange	Silt (Sediment)	Agric. - Truck Farm
	Rondout-Wallkill Rivers		Pochuck Creek	36-012	WHEELER CREEK	--	Orange	Nutrients	Agric. - Barnyard Runoff
	Rondout-Wallkill Rivers		Pochuck Creek	36-014	POCHUCK CREEK	--	Orange	Silt (Sediment)	Agric. - Truck Farm
	Rondout-Wallkill Rivers		Pochuck Creek	36-015	QUAKER CREEK	--	Orange	Silt (Sediment)	Agric. - Truck Farm
	Rondout-Wallkill Rivers	02020007.060	Upper Wallkill River	36-013	RUTGERS CREEK	--	Orange	Silt (Sediment)	Agric. - Barnyard Runoff
	Rondout-Wallkill Rivers	02020007.080	Lower Wallkill River	36-007	LAKE LOUISE	--	Ulster	Silt (Sediment)	Land Clearing/Development
	Rondout-Wallkill Rivers		Lower Wallkill River	56-001	LAKE LOUISE	--	Ulster	Nutrients	Agric. - Row Crops
	Rondout-Wallkill Rivers	02020007.110	Headwaters to Vernoooy Kill	53-013	SUGAR LOAF BROOK	--	Sullivan	Salts	Storage/App of Deicing Material
	Rondout-Wallkill Rivers		Headwaters to Vernoooy Kill	53-014	CHESTNUT CREEK	--	Sullivan	Pathogens	On-site Wastewater Systems
	Rondout-Wallkill Rivers		Headwaters to Vernoooy Kill	53-015	RED BROOK	--	Sullivan	Nutrients	On-site Wastewater Systems
	Rondout-Wallkill Rivers		Headwaters to Vernoooy Kill	56-008	ROUNDOUT CK-UPPER	--	Ulster	Priority Organics	** Storage/App of Deicing Material

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PRIORITY CANDIDATES FOR WATERSHED PLANNING
LOWER HUDSON RIVER BASIN (13)

SUBJECT TO AGENCY VERIFICATION

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG*	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
13-07	Esopus Creek	02020006.190	Upper Esopus Creek	56-002	SUBBEATY	--	--	Ulster	Silt (Sediment)	Land Clearing/Development
	Esopus Creek		Upper Esopus Creek	56-004	ESOPUS CREEK	--	--	Ulster	Silt (Sediment)	Agric. - Row Crops
13-08	Roeliff Jansen Kill	02020006.180	Kinderhook Creek to Jansen Kill	11-010	ROELIFF JANSEN KL	--	--	Columbia	Oxygen-Demanding Substances	Agric. - Manure Spreading
	Roeliff Jansen Kill		Kinderhook Creek to Jansen Kill	11-011	ROBINSON POND	--	--	Columbia	Nutrients	Agric. - Manure Spreading
	Roeliff Jansen Kill		Kinderhook Creek to Jansen Kill	11-012	HUDSON RIVER	--	--	Columbia	Silt (Sediment)	Storage/App of Deicing Material
	Roeliff Jansen Kill		Kinderhook Creek to Jansen Kill	11-013	HUDSON RIVER	--	--	Columbia	Salts	Storage/App of Deicing Material
13-09	Catskill Creek	02020006.140	Upper Catskill Creek	01-022	BASIC CREEK	--	--	Albany	Nutrients	Agric. - Barnyard Runoff
	Catskill Creek		Upper Catskill Creek	01-024	BASIC CREEK RES.	--	--	Albany	Nutrients	Nutrient Enriched Sediments
	Catskill Creek		Upper Catskill Creek	20-007	CATSKILL CREEK	--	--	Greene	Aesthetics	On-site Wastewater Systems
	Catskill Creek	02020006.150	Kaaterskill Creek	20-004	KISKATOM CREEK	--	--	Greene	Oxygen-Demanding Substances	Agric. - Improper Manure Storage
	Catskill Creek	02020006.160	Catskill Creek to Cementon, NY	20-005	CATSKILL CREEK	--	--	Greene	Unknown Toxic	Land Disposal (landfills)
	Catskill Creek		Catskill Creek to Cementon, NY	20-006	GREENS LAKE	--	--	Greene	Silt (Sediment)	Land Clearing/Development
13-10	Kinderhook Creek	02020006.100	Upper Kinderhook Creek	42-014	SPRING LAKE	--	--	Rensselaer	Nutrients	On-site Wastewater Systems
	Kinderhook Creek	02020006.110	Claverack Creek	11-003	COPAKE LAKE	--	--	Columbia	Nutrients	On-site Wastewater Systems
	Kinderhook Creek		Claverack Creek	11-005	CLAVERACK CREEK	--	--	Columbia	Unknown Toxic	Land Disposal (landfills)
	Kinderhook Creek		Claverack Creek	11-008	TAGHKANIC CREEK	--	--	Columbia	Water Level or Flow	Flow Regulation/Modification
	Kinderhook Creek		Claverack Creek	11-009	LOOMIS CREEK	--	--	Columbia	Unknown Toxic	Land Disposal (landfills)
	Kinderhook Creek	02020006.120	Lower Kinderhook Creek	11-001	QUEECHY LAKE	--	--	Columbia	Pathogens	On-site Wastewater Systems
	Kinderhook Creek		Lower Kinderhook Creek	11-002	SMITH POND	--	--	Columbia	Aesthetics	Storm Sewers
	Kinderhook Creek		Lower Kinderhook Creek	11-004	KINDERHOOK LAKE	--	--	Columbia	Priority Organics	** Agric. - Row Crops
	Kinderhook Creek		Lower Kinderhook Creek	11-007	PUNSIT CREEK	--	--	Columbia	Oxygen-Demanding	Agric. - Improper Manure

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-13

PRIORITY CANDIDATES FOR WATERSHED PLANNING
LOWER HUDSON RIVER BASIN (13)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
	Kinderhook Creek		Creek					Substances	Storage
			Lower Kinderhook	42-008	NASSAU LAKE	--	Rensselaer	Priority Organics	** On-site Wastewater Systems
	Kinderhook Creek		Creek						
			Lower Kinderhook	42-010	VALATIE KILL	--	Rensselaer	Priority Organics	** Land Disposal (Landfills)
			Creek						
13-11	Normanskill Creek	02020006.030	Mohawk River to Normanskill	01-007	THOMPSONS LAKE	--	Albany	Nutrients	Unknown
	Normanskill Creek		Mohawk River to Normanskill	01-008	NORMANSKILL	--	Albany	Water Level or Flow	Flow Regulation/Modification
	Normanskill Creek		Mohawk River to Normanskill	01-009	GLASS POND	--	Albany	Silt (Sediment)	Land Clearing/Development
	Normanskill Creek		Mohawk River to Normanskill	01-010	KRUMKILL CREEK	--	Albany	Unknown	Urban Runoff
	Normanskill Creek		Mohawk River to Normanskill	01-011	LOWER NORMANSKILL	--	Albany	Silt (Sediment)	Urban Runoff
	Normanskill Creek		Mohawk River to Normanskill	01-012	RENSSELAER LAKE	--	Albany	Silt (Sediment)	Highway/Bridge Construction
	Normanskill Creek		Mohawk River to Normanskill	01-013	PATROON CREEK	--	Albany	Unknown Toxic	Urban Runoff
	Normanskill Creek		Mohawk River to Normanskill	01-014	BUCKINGHAM POND	--	Albany	Silt (Sediment)	Urban Runoff
	Normanskill Creek		Mohawk River to Normanskill	01-015	KROMMA KILL	--	Albany	Unknown Toxic	Urban Runoff
	Normanskill Creek		Mohawk River to Normanskill	01-018	WATERVLIET RESEVR	--	Albany	Nutrients	Nutrient Enriched Sediments
	Normanskill Creek		Mohawk River to Normanskill	47-003	NORMANSKILL	--	Schenectady	Nutrients	On-site Wastewater Systems
	Normanskill Creek		Mohawk River to Normanskill	47-005	DUANE LAKE	--	Schenectady	Nutrients	On-site Wastewater Systems
	Normanskill Creek		Mohawk River to Normanskill	47-006	BECHER BROOK	--	Schenectady	Silt (Sediment)	Land Clearing/Development
	Normanskill Creek		Mohawk River to Normanskill	47-013	MARIAVILLE LAKE	--	Schenectady	Nutrients	On-site Wastewater Systems

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-13
PRIORITY CANDIDATES FOR WATERSHED PLANNING
LOWER HUDSON RIVER BASIN (13)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
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Normanskill

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-14 PRIORITY CANDIDATES FOR WATERSHED PLANNING DELAWARE RIVER BASIN (14)

BASIN CODE	HYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
14-01	Delaware River Main Stem	02040101.110	East Branch Delaware River to Callicoon Creek	13-006	DELAWARE R. MAIN	--	Delaware	Water Level or Flow	Flow Regulation/Modification
	Delaware River Main Stem	02040101.130	Callicoon Creek	53-004	CALLICOON CREEK	--	Sullivan	Nutrients	On-site Wastewater Systems
	Delaware River Main Stem		Callicoon Creek	53-012	BRISCOE LAKE	--	Sullivan	Nutrients	Nutrient Enriched Sediments
	Delaware River Main Stem	02040101.170	Callicoon Creek to Laxawaxen River	53-003	LAKE HUNTINGTON	--	Sullivan	Nutrients	On-site Wastewater Systems
	Delaware River Main Stem	02040104.020	Laxawaxen River to Mongaup River	53-001	HALFWAY BROOK	--	Sullivan	Pathogens	On-site Wastewater Systems
	Delaware River Main Stem		Laxawaxen River to Mongaup River	53-002	MOHICAN LAKE	--	Sullivan	Nutrients	On-site Wastewater Systems
	Delaware River Main Stem	02040104.030	Mongaup River	53-005	LOWER MONGAUP RIV	--	Sullivan	Water Level or Flow	Flow Regulation/Modification
	Delaware River Main Stem		Mongaup River	53-011	SACKETT LAKE	--	Sullivan	Silt (Sediment)	Land Clearing/Development
	Delaware River Main Stem	02040104.050	Neversink Reservoir	53-009	KRAMER BROOK	--	Sullivan	Nutrients	On-site Wastewater Systems
	Delaware River Main Stem		Neversink Reservoir	56-006	NEVERSINK-EAST BR	--	Ulster	Acid/Base	** Storage/App of Deicing Material
	Delaware River Main Stem		Neversink Reservoir	56-007	NEVERSINK-WEST BR	--	Ulster	Acid/Base	** Trash & Dumping
14-02	Neversink River	02040104.080	Lower Neversink River	53-006	KIAMSHA LAKE	--	Sullivan	Nutrients	Golf Course Runoff
	Neversink River		Lower Neversink River	53-007	EVENS LAKE	--	Sullivan	Nutrients	** Land Clearing/Development
	Neversink River		Lower Neversink River	53-008	MORNINGSIDE LAKE	--	Sullivan	Oxygen-Demanding Substances	Golf Course Runoff
14-03	East Branch Delaware River	02040102.010	Pepacton Reservoir	13-001	PEPACTON RESERV	--	Delaware	Pathogens	On-site Wastewater Systems
	East Branch Delaware River		Pepacton Reservoir	13-012	EAST BR.DELWARE RI	--	Delaware	Nutrients	On-site Wastewater Systems
	East Branch Delaware River	02040102.060	Lower East Branch Delaware River	13-007	DELAWARE R. E.BR.	--	Delaware	Thermal Changes	Flow Regulation/Modification
	East Branch Delaware River		Lower East Branch Delaware River	13-008	CADOSTA CREEK	--	Delaware	Unknown Toxic	Land Disposal (Landfills)
14-04	West Branch Delaware River	02040101.010	Upper West Branch Delaware River	13-002	UP.W.BR.DELAWARE	--	Delaware	Nutrients	** Agric. - Manure Spreading
	West Branch Delaware River	02040101.020	Little Delaware River	13-010	COULTER BROOK	--	Delaware	Pathogens	On-site Wastewater Systems

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-14

PRIORITY CANDIDATES FOR WATERSHED PLANNING
DELAWARE RIVER BASIN (14)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
River									
West Branch Delaware River	02040101.050	East & West Brooks to Cold Spring Creek	13-009	CANNONSVILLE RES.	--	Delaware	Nutrients	Agric. - Row Crops	
West Branch Delaware River	02040101.100	Cold Spring Ck to Oqueaga Ck & E. Br. Delaware	13-004	DELAWARE R. W.BR.	--	Delaware	Water Level or Flow	Flow Regulation/Modification	
West Branch Delaware River		Cold Spring Ck to Oqueaga Ck & E. Br. Delaware	13-014	SILVER LAKE	--	Delaware	Nutrients	On-site Wastewater Systems	
West Branch Delaware River		Cold Spring Ck to Oqueaga Ck & E. Br. Delaware	13-015	CRYSTAL LAKE	--	Delaware	Nutrients	On-site Wastewater Systems	

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-15
PRIORITY CANDIDATES FOR WATERSHED PLANNING
PASSAIC-NEWARK RIVER BASIN (15)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
15-01	Ramapo River	02030101.140	Pololopen Brook to near Rockland Lake	44-012	STONY POINT RESER	--	Rockland	Silt (Sediment)	Land Clearing/Development
	Ramapo River	02030103.060	Manaque River	36-002	GREENWOOD LAKE	--	Orange	Nutrients	On-site Wastewater Systems
	Ramapo River		Manaque River	36-003	LONGHOUSE CREEK	--	Orange	Oxygen-Demanding Substances	On-site Wastewater Systems
	Ramapo River	02030103.080	Upper Ramapo River	36-001	MOMBASHA LAKE	--	Orange	Pathogens	Urban Runoff
	Ramapo River	02030103.090	Mawah River	44-009	MAHWAH RIVER	--	Rockland	Pathogens	Agric. - Manure Spreading
	Ramapo River	02030103.160	Upper Hackensack River	44-004	SWARTOUT LAKE	--	Rockland	Nutrients	Land Clearing/Development
	Ramapo River		Upper Hackensack River	44-005	LAKE DEFOREST	--	Rockland	Silt (Sediment)	Urban Runoff
	Ramapo River		Upper Hackensack River	44-006	LAKE TAPPAN	--	Rockland	Silt (Sediment)	Urban Runoff
	Ramapo River		Upper Hackensack River	44-007	W. BR. HACKENSACK	--	Rockland	Silt (Sediment)	Land Clearing/Development
	Ramapo River		Upper Hackensack River	44-008	NAURAUSHAUN BROOK	--	Rockland	Oxygen-Demanding Substances	Agric. - Improper Manure Storage
	Ramapo River		Upper Hackensack River	44-011	ROCKLAND LAKE	--	Rockland	Nutrients	Golf course runoff & Waterfowl

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APPENDIX A-16

PRIORITY CANDIDATES FOR WATERSHED PLANNING
HOUSATONIC RIVER BASIN (16)

BASIN CODE	HYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEC* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
16-01	Housatonic River Main Stem	01100005.480	Ten Mile River	14-011	WEBATUCK CREEK	--	Dutchess	Silt (Sediment)	Agric. - Riparian Veg. Removal
	Housatonic River Main Stem		Ten Mile River	14-012	SWAMP RIVER	--	Dutchess	Chlorine	** Agric. - Riparian Veg. Removal
	Housatonic River Main Stem		Ten Mile River	14-014	RUDD POND	--	Dutchess	Nutrients	Streambank Erosion

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APPENDIX A-17
PRIORITY CANDIDATES FOR WATERSHED PLANNING
ATLANTIC OCEAN - LONG ISLAND SOUND (17)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
17-01	Atlantic Ocean	02030202.030	Nassau-Queens line to Baldwin Bay	30-003	HALLS POND	--	Nassau	Priority Organics	Urban Runoff
	Atlantic Ocean		Nassau-Queens line to Baldwin Bay	30-006	HEMPSTEAD LAKE	--	Nassau	Nutrients	Urban Runoff
	Atlantic Ocean		Nassau-Queens line to Baldwin Bay	30-013	ROOSEVELT POND	--	Nassau	Priority Organics	Urban Runoff
	Atlantic Ocean		Nassau-Queens line to Baldwin Bay	30-014	SMITH POND	--	Nassau	Priority Organics	Urban Runoff
	Atlantic Ocean	02030202.050	Baldwin Bay to Narrowskatuck Creek	30-002	FREEMPORT RESERV	--	Nassau	Priority Organics	Urban Runoff
	Atlantic Ocean		Baldwin Bay to Narrowskatuck Creek	30-007	LOFTS POND	--	Nassau	Priority Organics	Urban Runoff
	Atlantic Ocean		Baldwin Bay to Narrowskatuck Creek	30-010	MASSAPEQUA LAKE	--	Nassau	Nutrients	Urban Runoff
	Atlantic Ocean		Baldwin Bay to Narrowskatuck Creek	30-011	MASSAPEQUA RESERV	--	Nassau	Priority Organics	Urban Runoff
	Atlantic Ocean		Baldwin Bay to Narrowskatuck Creek	30-016	WANTAGH POND	--	Nassau	Priority Organics	Urban Runoff
	Atlantic Ocean	02030202.060	Jones Inlet to Fire Island Inlet - Barrier Island	30-015	SOUTH OYSTER BAY	--	Nassau	Pathogens	Urban Runoff
	Atlantic Ocean		Jones Inlet to Fire Island Inlet - Barrier Island	52-007	GR. SOUTH BAY (C)	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean	02030202.070	Narrowskatuck Creek to Connetquot River	52-001	BELMONT LAKE	--	Suffolk	Priority Organics	Urban Runoff
	Atlantic Ocean		Narrowskatuck Creek to Connetquot River	52-002	BRIGHTWATERS POND	--	Suffolk	Priority Organics	Urban Runoff
	Atlantic Ocean		Narrowskatuck Creek to Connetquot River	52-004	CHAMPLINS CREEK	--	Suffolk	Unknown Toxic	Unknown
	Atlantic Ocean		Narrowskatuck Creek to Connetquot River	52-022	SANTAPOGUE CREEK	--	Suffolk	Unknown Toxic	Unknown

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-17

PRIORITY CANDIDATES FOR WATERSHED PLANNING
ATLANTIC OCEAN - LONG ISLAND SOUND (17)

BASIN	SCS HYDROLOGIC	SCS HYDROLOGIC	SEGMENT	SEGMENT	SEG*	TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT
CODE	NYS DEC SUBBASIN NAME	UNIT NUMBER	UNIT NAME	ID	NAME				SOURCE CATEGORY
17-01	Atlantic Ocean	02030202.070	Harraskatuck Creek to Connetquot River	52-029	AMITYVILLE CREEK	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean		Harraskatuck Creek to Connetquot River	52-030	NEGUNTATOGUE CR	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean	02030202.090	Upper Connetquot River to Carmans River	52-011	LAKE RONKONOMA	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean	02030202.100	Connetquot River to Carmans River	52-003	CANAAN LAKE	--	Suffolk	Nutrients	Land Disposal (landfills)
	Atlantic Ocean		Connetquot River to Carmans River	52-008	GR. SOUTH BAY (E)	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean		Connetquot River to Carmans River	52-025	SPRING LAKE	--	Suffolk	Priority Organics	Urban Runoff
	Atlantic Ocean	02030202.130	Carmans River to East End Moriches Bay	52-015	MORICHES BAY	--	Suffolk	Pathogens	Storm Sewers
	Atlantic Ocean		Carmans River to East End Moriches Bay	52-027	WEST MILL POND	--	Suffolk	Nutrients	Nutrient Enriched Sediments
	Atlantic Ocean	02030202.160	North Shore-Little Peconic Bay, et.al.	52-009	HASHAMUCK POND	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean	02030202.170	Moriches Bay to Montauk Point	52-005	FLANDERS BAY	--	Suffolk	Nutrients	Urban Runoff
	Atlantic Ocean		Moriches Bay to Montauk Point	52-013	MECOX BAY	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean		Moriches Bay to Montauk Point	52-017	NORTH SEA HARBOR	--	Suffolk	Pathogens	Boat pollution
	Atlantic Ocean		Moriches Bay to Montauk Point	52-018	MONTAUK HARBOR	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean		Moriches Bay to Montauk Point	52-020	QUANTUCK BAY	--	Suffolk	Pathogens	Urban Runoff
	Atlantic Ocean		Moriches Bay to Montauk Point	52-021	SAG HARBOR & COVES	--	Suffolk	Pathogens	Storm Sewers
	Atlantic Ocean		Moriches Bay to Montauk Point	52-023	SHINNECOCK BAY	--	Suffolk	Pathogens	Storm Sewers

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-17
PRIORITY CANDIDATES FOR WATERSHED PLANNING
ATLANTIC OCEAN - LONG ISLAND SOUND (17)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
Atlantic Ocean									
17-02	Long Island Sound	011000006.280	Montauk Point Moriches Bay to Montauk Point Mill River	52-026	THREE MILE HARBOR	--	Suffolk	Pathogens	Storm Sewers
				60-022	MILL RIVER	--	Westchester	Silt (Sediment)	Hydrologic/Habitat Modification
	Long Island Sound	011000006.350	Mianus River	60-019	MIANUS RIVER	--	Westchester	Pesticides	Agric. - Fertilizer Application
	Long Island Sound		Mianus River	60-020	MIANUS RIVER	--	Westchester	Priority Organics	Chemical Leaks and Spills
	Long Island Sound		Mianus River	60-021	MIANUS RIVER	--	Westchester	Nutrients	Urban Runoff
	Long Island Sound	011000006.410	Upper Byram River	60-026	WAMPUS LAKE	--	Westchester	Silt (Sediment)	Land Clearing/Development
	Long Island Sound		Upper Byram River	60-027	WAMPUS BROOK	--	Westchester	Silt (Sediment)	Land Clearing/Development
	Long Island Sound		Upper Byram River	60-028	BYRAM RIVER	--	Westchester	Nutrients	On-site Wastewater Systems
	Long Island Sound	011000006.430	Lower Byram River	60-023	BYRAM RIVER	--	Westchester	Priority Organics	Urban Runoff
	Long Island Sound		Lower Byram River	60-024	BYRAM RIVER - 2	--	Westchester	Priority Organics	Urban Runoff
	Long Island Sound		Lower Byram River	60-025	PORT CHESTER HARB	--	Westchester	Priority Organics	Urban Runoff
	Long Island Sound	02030102.020	Lower Byram River	60-029	KENSICO RESERVOIR	--	Westchester	Silt (Sediment)	Land Clearing/Development
	Long Island Sound		Bronx River	60-030	BEAR GUTTER CREEK	--	Westchester	Silt (Sediment)	Land Clearing/Development
	Long Island Sound		Bronx River	60-031	TIBBETTS BROOK	--	Westchester	Pathogens	Storm Sewers
	Long Island Sound		Bronx River	60-033	MILTON HARBOR	--	Westchester	Silt (Sediment)	Land Clearing/Development
	Long Island Sound	02030102.030	Bronx River to Mamaroneck River	60-045	HUTCHINSON RIVER	--	Westchester	Priority Organics	Urban Runoff
	Long Island Sound		Bronx River to Mamaroneck River	60-046	LAKE ISLE	--	Westchester	Nutrients	Lawn Chemicals
	Long Island Sound	02030102.040	Mamaroneck River	60-035	GOODLIFE POND	--	Westchester	Nutrients	Urban Runoff
	Long Island Sound		Mamaroneck River	60-036	SHELDRAKE RIVER	--	Westchester	Nutrients	Urban Runoff
	Long Island Sound		Mamaroneck River	60-037	SHELDRAKE LAKE	--	Westchester	Nutrients	Urban Runoff
	Long Island Sound		Mamaroneck River	60-038	GARDENS LAKE	--	Westchester	Silt (Sediment)	Highway/Bridge Construction
	Long Island Sound		Mamaroneck River	60-039	LOWER SHELDRAKE R	--	Westchester	Silt (Sediment)	Urban Runoff
	Long Island Sound		Mamaroneck River	60-040	SILVER LAKE	--	Westchester	Nutrients	Urban Runoff
	Long Island Sound		Mamaroneck River	60-041	MAMARONECK RIVER	--	Westchester	Silt (Sediment)	Urban Runoff
	Long Island Sound		Mamaroneck River	60-042	EAST CREEK	--	Westchester	Pathogens	** Urban Runoff
	Long Island Sound		Mamaroneck River	60-043	PINE BROOK	--	Westchester	Priority Organics	Urban Runoff

Page A-17.3 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

*GW = Groundwater; ** Nonpoint source identified is not primary water quality problem - it is either a point source, atmo. dep. or contaminated sediments.

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-17

PRIORITY CANDIDATES FOR WATERSHED PLANNING
ATLANTIC OCEAN - LONG ISLAND SOUND (17)

BASIN CODE	MYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
17-02	Long Island Sound	02030102.040	Mamaroneck River	60-044	GUTON CREEK	--	Westchester	Pathogens	Urban Runoff
	Long Island Sound	02030102.060	Blind Brook	60-032	BLIND BROOK	--	Westchester	Nutrients	Urban Runoff
	Long Island Sound		Blind Brook	60-034	MEAD POND	--	Westchester	Nutrients	Urban Runoff
	Long Island Sound		Blind Brook	60-050	LONG ISLAND SOUND	--	Westchester	Pathogens	** Urban Runoff
	Long Island Sound	02030102.070	Coastal Drainage - Milton Harbor to State Line	60-051	BEAVER SWAMP BRK	--	Westchester	Silt (Sediment)	Land Clearing/Development
	Long Island Sound	02030201.030	Nassau-Queens Line to 30-008 Sand Point Lighthouse		LONG IS SOUND (U)	--	Nassau	Pathogens	Urban Runoff
	Long Island Sound		Nassau-Queens Line to 30-009 Sand Point Lighthouse		MANHASSET BAY	--	Nassau	Pathogens	** Urban Runoff
	Long Island Sound	02030201.040	Sand Point Lighthouse to Bayville, NY	30-001	DOSORIS POND	--	Nassau	Pathogens	Urban Runoff
	Long Island Sound		Sand Point Lighthouse to Bayville, NY	30-004	HEMPSTEAD BAY	--	Nassau	Pathogens	Urban Runoff
	Long Island Sound		Sand Point Lighthouse to Bayville, NY	30-005	HEMPSTEAD HARBOR	--	Nassau	Pathogens	Urban Runoff
	Long Island Sound	02030201.050	Bayville, NY to Lloyd 30-012 Point		OYSTER BAY	--	Nassau	Pathogens	Urban Runoff
	Long Island Sound		Bayville, NY to Lloyd 30-017 Point		COLD SPRING HARBR	--	Nassau	Pathogens	Urban Runoff
	Long Island Sound	02030201.060	Lloyd Point to Nissequogue River	52-010	HUNTINGTON BAY	--	Suffolk	Pathogens	Urban Runoff
	Long Island Sound	02030201.070	Nissequogue River	52-014	MILLERS POND	--	Suffolk	Oxygen-Demanding Substances	Urban Runoff
	Long Island Sound		Nissequogue River	52-024	SMITHTOWN BAY	--	Suffolk	Pathogens	Urban Runoff
	Long Island Sound		Nissequogue River	52-028	NISSEQUOGUE RIVER	--	Suffolk	Pathogens	Urban Runoff
	Long Island Sound	02030201.080	Nissequogue River to Orient Point	52-006	GOLDSMITHS INLET	--	Suffolk	Pathogens	Urban Runoff
	Long Island Sound		Nissequogue River to Orient Point	52-012	MATTITUCK INLET	--	Suffolk	Pathogens	Urban Runoff
	Long Island Sound		Nissequogue River to Orient Point	52-016	MT SINAI HARBOR	--	Suffolk	Pathogens	Boat pollution

Page A-17.4 -- DRAFT DATA; SUBJECT TO AGENCY VERIFICATION

*GW = Groundwater; ** Nonpoint source identified is not primary water quality problem - it is either a point source, atmo. dep. or contaminated sediments.

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SUBJECT TO AGENCY VERIFICATION

APPENDIX A-17
PRIORITY CANDIDATES FOR WATERSHED PLANNING
ATLANTIC OCEAN - LONG ISLAND SOUND (17)

BASIN CODE	NYS DEC SUBBASIN NAME	SCS HYDROLOGIC UNIT NUMBER	SCS HYDROLOGIC UNIT NAME	SEGMENT ID	SEGMENT NAME	SEG* TYPE	COUNTY	PRIMARY POLLUTANT	PRIMARY NONPOINT SOURCE CATEGORY
	Long Island Sound		Orient Point		PORT JEFFERSON N.	--	Suffolk	Pathogens	Urban Runoff
			Missequogue River to	52-019					
			Orient Point						

APPENDIX B

CHAPTER 436 OF LAWS OF 1989
STATE NONPOINT SOURCE POLLUTION CONTROL

STATE OF NEW YORK

7224--A

1989-1990 Regular Sessions

IN ASSEMBLY

March 28, 1989

Introduced by M. of A. HINCHEY, BRAGMAN, HOYT, TONKO, GRANNIS, TALLON
-- Multi-Sponsored by -- M. of A. BENNETT, BRENNAN, BRODSKY, CASALE,
CONNELLY, CONNERS, COOMBE, DINAPOLI, LASHER, R. H. MILLER, ORTLOFF,
PASSANNANTE, PATAKI, PILLITTERE, PROUD, SEMINERIO, STRANIERE, SWEENEY,
TOCCI, WEINSTEIN, YEVOLI, YOUNG, ZALESKI -- read once and referred to
the Committee on Environmental Conservation -- reported and referred
to the Committee on Rules -- Rules Committee discharged, bill amended,
ordered reprinted as amended and recommitted to the Committee on
Rules

AN ACT to amend the environmental conservation law and the soil and
water conservation districts law, in relation to the abatement and
control of nonpoint source pollution

The People of the State of New York, represented in Senate and Assem-
bly, do enact as follows:

- 1 Section 1. Article 17 of the environmental conservation law is amended
- 2 by adding a new title 14 to read as follows:
- 3 TITLE 14
- 4 NONPOINT SOURCE WATER POLLUTION CONTROL
- 5 Section 17-1401. Purpose.
- 6 17-1403. Definitions.
- 7 17-1405. Inventory.
- 8 17-1407. Priority nonpoint source pollution.
- 9 17-1409. State assistance for non-agricultural nonpoint source
- 10 abatement and control projects.
- 11 17-1411. Regulations.
- 12 § 17-1401. Purpose.
- 13 It is the purpose of this title to safeguard the waters of the state
- 14 from nonpoint source pollution by controlling and abating new and exist-
- 15 ing sources of nonpoint source pollution.

EXPLANATION--Matter in italics (underscored) is new; matter in brackets
[] is old law to be omitted.

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1 b. the project must be proposed for implementation by a municipal cor-
 2 poration, or by a district at the formal request of such corporation;
 3 c. the project must be located within a water body identified by the
 4 commissioner, pursuant to section 17-1407 of this title;
 5 d. the project must propose to implement best management practices
 6 which meet the criteria promulgated pursuant to section 17-1411 of this
 7 title; and
 8 e. the municipal corporation must have funds available to pay for its
 9 share of the eligible project costs.
 10 2. Applications for matching grants shall contain the following
 11 information:
 12 a. the name and location of the water body and the nonpoint source
 13 problem to be addressed;
 14 b. identification of the best management practice to be implemented;
 15 c. a cost estimate for the proposed project;
 16 d. the source of funds available to pay for the non-state share of the
 17 eligible costs;
 18 e. information sufficient to demonstrate that the criteria set forth
 19 in subdivision one of this section have been met; and
 20 f. such other information as may be required by the commissioner
 21 through regulations.
 22 3. In awarding grants pursuant to this section, the commissioner shall
 23 give preference to those projects located in the highest priority water
 24 bodies identified pursuant to section 17-1407 of this title.
 25 4. Eligible costs that may be funded pursuant to this section are ar-
 26 chitectural and engineering services, plans and specifications, con-
 27 sultant and legal services and other direct expenses related to project
 28 implementation.
 29 5. Matching grants awarded pursuant to this section shall be up to
 30 fifty percent of the eligible costs for any specified project.
 31 § 17-1411. Regulations.
 32 1. The commissioner may promulgate regulations necessary to effectuate
 33 the purposes of section 17-1409 of this title including, but not limited
 34 to, regulations setting forth criteria for submission and processing of
 35 grant applications, components of best management practices and state
 36 standards necessary to control nonpoint source pollution.
 37 2. Regulations promulgated pursuant to subdivision one of this section
 38 shall not require the approval of the state environmental board pursuant
 39 to paragraph a of subdivision two of section 3-0301 or subdivision two
 40 of section 5-0107 of this chapter.
 41 § 2. The opening paragraph of section 17-0105 of the environmental
 42 conservation law is amended to read as follows:
 43 When used in titles 1 to 11, inclusive, and (title) titles 14 and 19
 44 of this article:
 45 § 3. Section 2 of the soil and water conservation districts law, as
 46 amended by chapter 887 of the laws of 1964, is amended to read as
 47 follows:
 48 § 2. Declaration of policy. It is hereby declared to be the policy of
 49 the legislature to provide for the conservation of the soil and water
 50 resources of this state, and for the improvement of water quality, and
 51 for the control and prevention of soil erosion and for the prevention of
 52 floodwater and sediment damages and for furthering the conservation,
 53 development, utilization and disposal of water, and thereby to preserve
 54 natural resources, control and abate nonpoint sources of water pollu-
 55 tion, assist in the control of floods, assist in the drainage and irri-
 56 gation of agricultural lands, prevent impairment of dams and reservoirs,

1 § 17-1403. Definitions.
 2 As used in this title:
 3 1. "Best management practices" means methods, measures or practices
 4 determined to be the most practical and effective in preventing or
 5 reducing the impact of pollutants generated by nonpoint sources to a
 6 level compatible with water quality standards established pursuant to
 7 section 17-0301 of this article. Best management practices include, but
 8 are not limited to, structural and nonstructural controls and operations
 9 and maintenance procedures. Best management practices can be applied
 10 before, during or after pollution-producing activities to reduce or
 11 eliminate the introduction of pollutants into receiving waters.
 12 2. "Municipal corporation" means a county, city, town or village or an
 13 entity designated to act on behalf of such.
 14 3. "Nonpoint source" means any source of water pollution or pollutants
 15 which is not a discrete conveyance or point source permitted pursuant to
 16 title seven or eight of this article.
 17 4. "Nonpoint source abatement and control program" means a program of
 18 activities and projects for the abatement and reduction of nonpoint
 19 source pollution through the implementation of best management
 20 practices.
 21 5. "District" means a county, soil and water conservation district
 22 created pursuant to section five of the soil and water conservation dis-
 23 tricts law.
 24 § 17-1409. Inventory.
 25 1. Within eighteen months of the effective date of this title the com-
 26 missioner, in cooperation with the state soil and water conservation
 27 committee, shall prepare a report which:
 28 A. identifies those water bodies within the state which, without addi-
 29 tional action to control nonpoint sources of pollution, cannot reason-
 30 ably be expected to attain and maintain applicable water quality stan-
 31 dards; and
 32 B. identifies categories or subcategories of nonpoint sources or par-
 33 ticular nonpoint sources which add significant amounts of pollution to
 34 each water body identified above.
 35 2. The report prepared pursuant to this section shall be revised by
 36 the commissioner in cooperation with the state soil and water conserva-
 37 tion committee at least every five years.
 38 § 17-1407. Priority Nonpoint Source Pollution.
 39 From the inventory developed pursuant to section 17-1409 of this title
 40 the commissioner, after consultation with the state soil and water con-
 41 servation committee, shall develop a prioritized list of water bodies,
 42 management of which will reduce and control nonpoint source pollution
 43 and improve water quality. In developing such list, consideration shall
 44 be given to the existing water quality of the water body, the best usage
 45 of the water body pursuant to section 17-0301 of this article and its
 46 potential for improvement.
 47 § 17-1409. State assistance for non-agricultural nonpoint source abate-
 48 ment and control projects.
 49 1. Subject to the availability of funds appropriated therefor, a mat-
 50 ching grant program is established to fund the costs of implementing
 51 nonpoint source abatement and control projects that meet the following
 52 criteria:
 53 a. the project must consist of activities and projects which will sig-
 54 nificantly reduce, abate or control nonpoint source pollution originat-
 55 ing from non-agricultural activities;

1 assist in maintaining the navigability of rivers and harbors, preserve
2 wildlife, protect the tax base, protect public lands, and protect and
3 promote the health, safety and general welfare of the people of this
4 state.

5 4. Section 3 of the soil and water conservation districts law is
6 amended by adding five new subdivisions 13, 14, 15, 16 and 17 to read as
7 follows:

8 (13) "Nonpoint source" means any source of water pollution or pol-
9 lution, as defined in section 17-0105 of the environmental conservation
10 law, which is not a discrete conveyance or point source permitted pur-
11 suant to title seven or eight of article seventeen of the environmental
12 conservation law.

13 (14) "Nonpoint source abatement and control program" means a program
14 of activities and projects for the abatement and reduction of nonpoint
15 source pollution through the implementation of best management
16 practices.

17 (15) "Agricultural nonpoint source abatement and control program"
18 means a program consisting of activities and projects for the abatement
19 and reduction of water pollution from agricultural nonpoint sources
20 through the installation, operation and maintenance of best management
21 practices. Such program shall address agriculturally related activities
22 and their impact on water quality and shall include, but not be limited
23 to, activities and projects for controlling losses from the land includ-
24 ing nutrients, particularly nitrogen and phosphorus, pathogens, toxic
25 contamination of surface waters and groundwater from heavy metals,
26 pesticides and other organic substances, and for the prevention of
27 siltation and eutrophication of streams, rivers, lakes and other water
28 bodies.

29 (16) "Best management practices" means methods, measures or practices
30 determined to be the most practical and effective in preventing or
31 reducing the amount of pollutants generated by nonpoint sources to a
32 level compatible with water quality standards established pursuant to
33 section 17-0301 of the environmental conservation law. Best management
34 practices include, but are not limited to, structural and nonstructural
35 controls and operation and maintenance procedures. Best management prac-
36 tices can be applied before, during or after pollution-producing activi-
37 ties to reduce or eliminate the introduction of pollutants into receiv-
38 ing waters.

39 (17) "Priority water body" means a water body identified by the com-
40 missioner of environmental conservation pursuant to section 17-1407 of
41 the environmental conservation law.

42 5. Subdivisions 1, 2, 3, 5, 7, 8 and 10 of section 9 of the soil and
43 water conservation districts law, as amended by chapter 887 of the laws
44 of 1964, are amended to read as follows:

45 (1)(i.) To conduct surveys, investigations, and research relating to
46 the character of soil erosion (land), floodwater (land), sediment damages,
47 nonpoint source water pollution, and the preventive and control measures
48 needed to publish the results of such surveys, investigations, or
49 research, and to disseminate information concerning such preventive and
50 control measures; provided, however, that in order to avoid duplication
51 of research activities, no district shall initiate any research program
52 except in cooperation with the New York state college of agriculture,
53 and any agency of the state or of the United States as may be dealing
54 with allied problems;

55 (2) To carry out preventive and control measures within the district
56 including, but not limited to, engineering operations, methods of culti-

1 vation, the growing of vegetation and changes in use of land and
2 drainage, irrigation and other agricultural water management operations
3 and measures for the prevention of floodwater and sediment damages, or
4 for the control and abatement of nonpoint sources of water pollution on
5 lands owned or controlled by this state or any of its agencies, with the
6 consent and cooperation of the agency administering and having jurisdic-
7 tion thereof, and on any other lands within the district and, notwith-
8 standing any general, special, local or other provision of law,
9 including the lands of directors, officers or employees of said dis-
10 trict, upon obtaining the consent of the occupier of such lands or the
11 necessary rights or interests in such lands;

12 (3) To cooperate, or enter into agreements with, and within the lim-
13 its of appropriations duly made available to it by law, to furnish
14 financial or other aid to, any agency, governmental or otherwise, or any
15 occupier of lands within the district, in carrying on of erosion-
16 control, flood prevention and sediment damage prevention operations,
17 control and abatement of nonpoint sources of water pollution, and land
18 use adjustments including ditching, draining and flood control opera-
19 tions for effective conservation and utilization of the lands and waters
20 within the district, subject to such conditions as the directors may
21 deem necessary to advance the purposes of this chapter;

22 (5) To make available, on such terms as it shall prescribe, to land
23 occupiers within the district, agricultural and engineering machinery
24 and equipment, fertilizers, seeds, and seedlings, and such other material
25 or equipment, as will assist such land occupiers to carry on operations
26 upon their lands for the effective conservation and utilization of soil
27 and water resources (and for their prevention and control of soil ero-
28 sion (land for the) prevention of floodwater and sediment damages, and
29 for the control and abatement of nonpoint sources of water pollution);

30 (7) To develop comprehensive plans for the conservation of soil and
31 water resources (and for their control and prevention of soil erosion,
32 for the prevention of floodwater and sediment damages, control and
33 abatement of nonpoint sources of water pollution, and for agricultural
34 water management within the district, which plans shall specify in such
35 detail as may be possible, the acts, procedures, performances, and
36 avoidances which are necessary or desirable for the effectuation of such
37 plans, including the specification of engineering operations, methods of
38 cultivation, the growing of vegetation, cropping programs, tillage prac-
39 tices, and changes in the use of land, and to publish such plans and in-
40 formation and bring them to the attention of occupiers of lands within
41 the district; provided, however, that in order to avoid duplication of
42 educational activities no district shall publish any such plans and in-
43 formation except in cooperation with the New York state college of agricul-
44 ture and with the approval of the state soil conservation committee;

45 (8) To act as agent for the United States, or any of its agencies, or
46 for this state or any of its agencies, in connection with the acqui-
47 sition, construction, operation, maintenance or administration of any
48 soil-conservation, erosion-prevention, or erosion-prevention, agricul-
49 tural water management, flood prevention (or), sediment damage prevention, or
50 nonpoint source water pollution control and abatement project within its
51 boundaries; to accept donations, gifts, and contributions in money, ser-
52 vices, materials or otherwise, from the United States or any of its
53 agencies, or from this state or any of its agencies, and to use or ex-
54 pend such moneys, services, materials, or other contributions in car-
55 rying on its operations;

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(10) As a condition to the extending of any benefits under this chapter to or the performance of work upon, any lands not owned or controlled by this state or any of its agencies, the directors may require contributions in money, services, materials or otherwise to any operations conferring such benefits, and may require land occupiers to enter into and perform such agreements or covenants as to the long term use of such lands as will tend to prevent or control erosion, (and) prevent floodwater and sediment damages, control and abate nonpoint sources of water pollution, and make for more effective agricultural water management thereon.

§ 6. The soil and water conservation districts law is amended by adding a new section 11-b to read as follows:

§ 11-b. Agricultural nonpoint source abatement and control projects.

1. Subject to the availability of funds appropriated therefor, a matching grant program is established to fund the implementation of agricultural nonpoint source abatement and control projects that meet the following criteria:

- a. the project must consist of activities and plans which will reduce, abate, control or prevent nonpoint source pollution originating from agricultural sources;
- b. the project must be proposed for implementation by a district or group of districts acting jointly;
- c. the project must be located within a priority water body identified by the commissioner of environmental conservation pursuant to section 17-1407 of the environmental conservation law, and propose to implement best management practices, as defined in section three of this chapter; and
- d. the district or districts must have funds available to pay for its share of the eligible project costs.

2. Applications for matching grants shall contain the following information:

- a. the name and location of the water body and the nonpoint source problem to be addressed;
- b. identification of the best management practices to be implemented;
- c. a cost estimate for the proposed project;
- d. the source of funds available to the district to pay for its share of the eligible cost;
- e. information sufficient to demonstrate that the criteria in subdivision one of this section have been met; and
- f. such further information as may be required by the committee through regulations.

3. In awarding grants the committee, upon the recommendation of the commissioner of environmental conservation, shall give preference to those projects located in priority waterbodies identified pursuant to section 17-1407 of the environmental conservation law.

4. Eligible costs that may be funded pursuant to this section are architectural and engineering services, plans and specifications, consultant and legal services and other direct expenses related to project construction.

5. Matching grants awarded pursuant to this section shall be up to a maximum of fifty percent of the eligible costs, as determined pursuant to subdivision four of section 17-1409 of the environmental conservation law, for any specified project. Such maximum shall be increased by a percentage equal to the percentage of the total eligible costs for such specified project that are contributed by the owner or operator of agricultural land upon which such specified project is being conducted.

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provided, however, that in no event shall the total of such matching grants exceed seventy-five percent of such eligible costs for any specified project.

6. The committee may adopt rules and regulations necessary to effectuate the purposes of this section.

§ 7. Notwithstanding any provision of law to the contrary, the commissioner of agriculture and markets shall sub-allocate to the department of environmental conservation the sum of fifty thousand dollars for the nonpoint source water pollution control program out of monies appropriated therefor.

§ 8. This act shall take effect immediately.

APPENDIX C

CERTIFICATION OF AUTHORITY BY THE ATTORNEY GENERAL

(To be added at a later date)

APPENDIX D

MATRIX OF FUNDING SOURCES

APPENDIX D

EXISTING FUNDING FOR NONPOINT SOURCE PROGRAMS

Chapter V of the Nonpoint Source Assessment Report identified 58 programs with a role in controlling nonpoint source pollution in New York. All of these programs allocate funding or staff time to activities that reduce or prevent nonpoint source pollution. These programs and others subsequently identified are listed in the matrix which follows.

Programs are classified, based on scope, into two categories, planning/management and implementation. These are further classified into two subcategories, internal and external. An internal activity is a program that basically supports the existing agency. An external designation means that the primary mechanism for carrying out the program is by assisting, educating or training Organizations and/or individuals outside the program.

An example of the matrix is as follows:

PROGRAM	PLANNING & MANAGE		IMPLEMENTATION	
	INTERNAL	EXTERNAL	INTERNAL	EXTERNAL
Conservation Oper. USDA - SCS				I-S (1) \$\$\$ (2) "TA" (3)

In the matrix, three lines are used for each program. Line (1) identifies the program objective, line (2) indicates the relative magnitude, and line (3) shows the mode of operation of external programs.

The entry for objective is a two-letter description which defines how the program addresses nonpoint sources and the area of application. Objective is defined by a "D" for direct and "I" for indirect. Program objective is further identified with a "S", "R" or "W" to identify area of applicability:

- S - Statewide; resources available to control nonpoint source problems across the state on a first come basis.
- R - Regional; resources available to control nonpoint source problems within a county or a geographic region, on a first come basis (follows political boundaries).
- W - Watershed; resources available to control nonpoint source problems within a watershed and for specific identified problems within the area (follows natural boundaries).

Relative magnitude is based on actual funding available rather than authorized funding. It is displayed using "0", "\$", "\$\$", and "\$\$\$" to identify the magnitude of the program. The following table shows the meaning of these entries.

Relative Magnitude	Funding Available	or	Staff Available
0	0		None
\$	< \$300,000		< 5 staff yrs.
\$\$	\$300,000-\$600,000		5-10 staff yrs.
\$\$\$	> \$600,000		> 10 staff yrs.

Mode of operation of external programs is designated by either "TA" or a "\$x/\$x". A "TA" means no financial assistance is available; program funds are for technical assistance. Financial assistance is identified by "\$x/\$x" and shows the amount the source agency requires the receiver to contribute as a condition of receiving the funds. A "\$/\$" shows a requirement that the grantee contribute one dollar for each dollar received; a "\$6/\$4" shows a requirement that the grantee contribute four dollars for every six dollars received; "\$/\$0" means source resources are available without a match.

PROGRAM	EXISTING (FY1989)						ESTIMATED FUTURE FUNDING (1990 AND 1991)					
	PLANNING/MANAGE			IMPLEMENTATION			PLANNING/MANAGE			IMPLEMENTATION		
	INTERN	EXTERN		INTERN	EXTERN		INTERN	EXTERN		INTERN	EXTERN	
CWA - S.320 National Estuary Program	D - S											
CWA - S.314 Clean Lakes Program	D - S					D - S \$\$ "?"						
CWA - S.104(b) Pollution Prevention						D - S \$						D - S \$
Bulk Storage - Division of Water	D - S \$\$\$					D - S \$ "TA"	D - S \$\$\$					D - S \$ "TA"
Clean Lakes Program - Division of Water	D - S \$					D - S \$ "TA"	D - S \$					D - S \$ "TA"
Dredging of Contaminated Sediments - Division of Water						D - S \$\$				D - S \$\$		
Forest Products Harvest Management - Division of Lands & Forests						D - S \$ "TA"						D - S \$ "TA"

D = Direct S = Statewide
 I = Indirect R = Regional
 W = Watershed

\$ = < 5 staff years (\$300,000)
 \$\$ = 5-10 Staff years (<600,000)
 \$\$\$ = >10 staff years (>600,000)

"\$/\$" = \$1 for \$1 match (50%)
 "\$6/\$4" = \$6 for \$4 match (40%)
 "\$/\$0" = \$ avail without match
 "TA" = Technical Assist avail

PROGRAM	EXISTING (FY1989)						ESTIMATED FUTURE FUNDING (1990 AND 1991)					
	PLANNING/MANAGE			IMPLEMENTATION			PLANNING/MANAGE			IMPLEMENTATION		
	INTERN	EXTERN		INTERN	EXTERN		INTERN	EXTERN		INTERN	EXTERN	
Delaware River Basin Commission - Division of Water	I - W \$						I - W \$					
Freshwater Wetlands Protection - Division of Fish and Wildlife	I - S \$\$\$						I - S \$\$\$					
Flood Control Projects- Division of Water				I - S \$\$				I - S \$\$				
Intensive Stream Surveys Division of Water	I - S \$\$\$						I - S \$\$\$					
Mining Permits & Mine Land Reclamation - Div. of Mineral Resources	I - S \$\$			I - S \$\$			I - S \$\$			I - S \$\$		
Oil and Gas Regulation- Division of Mineral Resources	I - S \$\$\$			I - S \$\$\$			I - S \$\$\$			I - S \$\$\$		
Reservoir Release Program - Division of Water	I - S \$\$											

D = Direct S = Statewide
I = Indirect R = Regional
W = Watershed

\$ = < 5 staff years (\$300,000)
\$\$ = 5-10 Staff years (<600,000)
\$\$\$ = >10 staff years (>600,000)

"\$/\$" = \$1 for \$1 match (50%)
"\$6/\$4" = \$6 for \$4 match (40%)
"\$/\$0" = \$ avail without match
"TA" = Technical Assist avail

PROGRAM	EXISTING (FY1989)						ESTIMATED FUTURE FUNDING (1990 AND 1991)					
	PLANNING/MANAGE			IMPLEMENTATION			PLANNING/MANAGE			IMPLEMENTATION		
	INTERN	EXTERN		INTERN	EXTERN		INTERN	EXTERN		INTERN	EXTERN	
Wild and Scenic Rivers - Division of Lands and Forests	I - R \$\$						I - R \$\$					
Agricultural Conser- vation Program - USDA ASCS					I - S \$\$\$ "\$3/\$"						I - S \$\$\$ "\$3/\$"	
Community Development Block Grants - US HUD					I - S \$\$\$ "?"						I - S \$\$\$ "?"	
Coastal Zone Manage- ment Act - US Depart- ment of Commerce		I - W \$\$\$ "\$6/\$4"							I - W \$\$\$ "\$6/\$4"			
Conservation Operations- US Soil Conservation Service					I - S \$\$\$ "TA"						I - S \$\$\$ "TA"	
Food Security Act - USDA Agricultural Stabil- ization & Cons. Service				I - S	I - S \$\$\$ \$ varies					I - S	I - S \$\$\$ \$ varies	
Forestry Incentive Program - USDA ASCS					I - S \$\$\$ "\$/\$"						I - S \$\$\$ "\$/\$"	

D = Direct S = Statewide
I = Indirect R = Regional
W = Watershed

\$ = < 5 staff years (\$300,000)
\$\$ = 5-10 Staff years (<600,000)
\$\$\$ = >10 staff years (>600,000)

"\$/\$" = \$1 for \$1 match (50%)
"\$6/\$4" = \$6 for \$4 match (40%)
"\$/\$0" = \$ avail without match
"TA" = Technical Assist avail

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